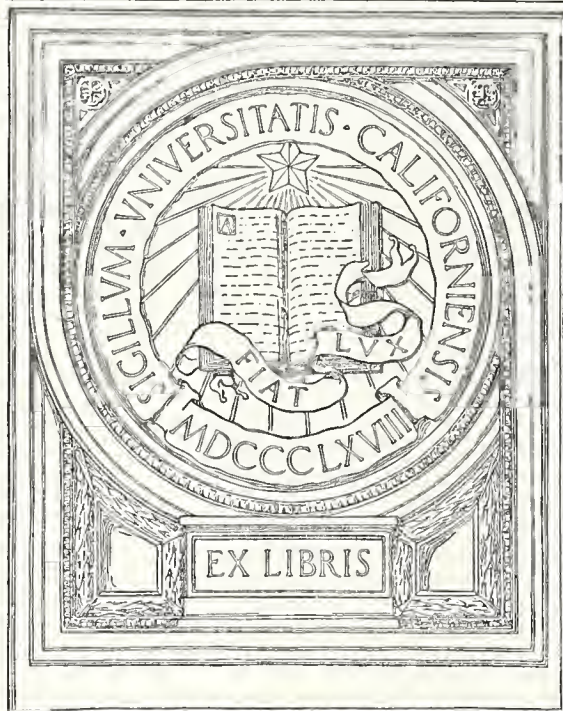




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# THE JOURNAL OF THE ARKANSAS MEDICAL SOCIETY

JUNE 1957

U.S. MEDICAL CLERK

JUN 1957

San Francisco, 22

VOL. 54 No. 1

FORT SMITH, ARKANSAS

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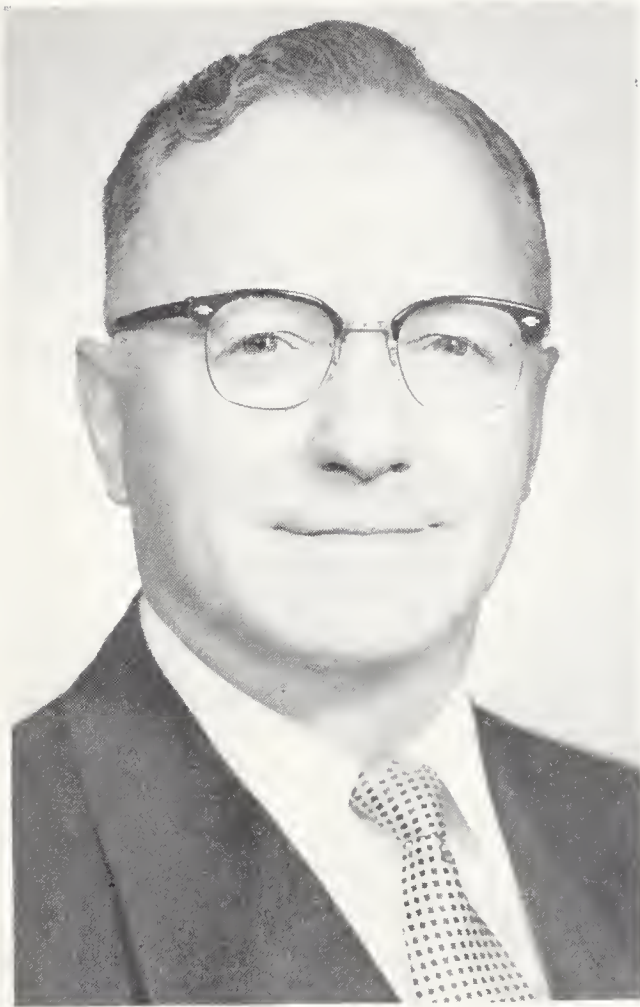
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Little Rock

**PRESIDENT**

**Arkansas Medical Society**

**1957-1958**





# The JOURNAL

OF THE ARKANSAS MEDICAL SOCIETY

PUBLISHED MONTHLY UNDER DIRECTION OF THE COUNCIL

Volume 54

JUNE, 1957

Number 1

## *81st Annual Session* **Arkansas Medical Society** **PRESIDENT'S ADDRESS**

FIRST GENERAL SESSION

FOUNT RICHARDSON, Fayetteville

Mr. Chairman, Friends:

We gather at the Eighty-First Annual Session of the Arkansas Medical Society for a variety of reasons. We come here to refresh ourselves in the brotherhood of those who fight the same enemy—pain, disease, disaster, and affliction.

Obviously, we come to learn from the great medical teachers who are gathered from the finest medical centers in the world to bring us scientific news that has been slowly evolved from our great laboratories and study halls. We thus share experiences with each other, creating, inventing, testing and applying, the newly found secrets that nature holds out only to those who seek knowledge.

More specifically at this particular session we meet to share in the dedication of a Medical Center—not really a new one but a rebirth of an old medical center into new and spacious quarters, keeping pace with modern scientific developments and with the continuing progress of our state. The Medical Society has been, and still is, intimately connected with the School of Medicine. It served at the accouchement of the institution more than half a century ago. It has been at its bedside constantly when the School was in need of attention. Unfortunately the task is not complete when the new child is launched. There remains its support, its nourishment, protection, guidance, and its wise counsel. These things

the Arkansas Medical Society has provided. The Society is, without question, the Family Doctor of the school itself. The Society takes considerable justifiable pride, therefore, in the new home of the University of Arkansas School of Medicine.

We are all aware that the plans and accomplishments that I speak of, have not been the dream of one man but of many. The promotion of the Medical Center has been one of the objectives closest to the heart of our governor, the Honorable Orval Faubus. Its support was one of his favored projects and the members of the Arkansas Medical Society can be thankful for his leadership.

To the elected legislators of Arkansas also goes considerable credit. These men earnestly studied the program of the Medical School—along with the many other demands upon them—and provided for the maintenance and future support of the Medical Center. They wisely provided that the Center be made a place of refuge for the indigent sick in our state, as well as giving clinical material for the training of those who will serve the medical needs of the people of Arkansas. Nor can we fail to take pride in the fact that, acting together, the governor and the legislature, and I include also those legislators whose loyal opposition pointed out flaws and possible errors in conduct of the Medical Center, all have provided financial support at a state level. This makes it unlikely that the school

## PRESIDENT'S ADDRESS

will have to join the questionable crowd of those who continue to plead for federal support for medical, and other education. We are proud that the governor and other Arkansas leaders have recognized the responsibility of doing for ourselves all that we can, and not lie down, kick our heels, and ask the Federal Government to come in and support us.

For Arkansas or any State, to turn over the control of its schools to a Bureau of Directors in the National Capitol is to sell its birthright for a mess of financial pottage. I am proud to say that our governor and our legislators stood up to the task of doing the job ourselves and we in Arkansas medicine can be thankful and grateful to them.

The classic short-sightedness of our times, lies in the contention that Federal Aid does not mean Federal Control. For the record, Federal Aid **does** mean Federal Control and this control, once established, is a yoke that is rarely escaped.

Americans would be wiser to avoid the pitfall of easy money from the Federal source. Easy money is that money taken from someone else, some other taxpayer. There is no other source. The tax-dollar that goes to Little Rock pays much larger dividends than the tax-dollar that goes to Washington.

We will do well to avoid the creeping cancer of the Welfare State. We will do well to follow the historic example of the



OUT-GOING PRESIDENT FOUNT RICHARDSON ADMINISTERS  
OATH OF OFFICE TO NEW PRESIDENT T. DUEL BROWN.



## PRESIDENT'S ADDRESS

people who left a decaying Europe to settle in a new country, where they could build a new destiny of freedom far from the Political States of the eighteenth century. We will do well to build our institutions with our own hands and our own money, to maintain the dignity of independence and pride of accomplishment.

Our State leaders in these past years have provided us with a magnificent school and hospital. It will need support both in monies and in clinical material. I challenge every physician in the Arkansas Medical Society to do his part, both in a financial way and in the way of clinical material. We can build an endowment fund from our own purses and our own resources through our Alumni Association, which can administer such a fund to keep stable the source of income for our Medical School. The Medical Alumni of the University and other Arkansas physicians could raise a fund of one million dollars, within the next three

years, to begin such a program. Suppose that every physician in Arkansas would respond to that appeal. It would make the task easy. Industry and capital would become interested in such a project—securely and properly launched by the doctors themselves. I believe firmly the initiative rests with us and I urgently request the Alumni Association of the Medical School to accept the challenge and give all physicians in Arkansas a chance to share in a Medical Foundation where every dollar is wisely spent in our own medical and hospital channels. We can know that every penny goes for medicine and medical education. We can know that we are not begging at the doorstep of a paternalistic government for services that we can do for ourselves. We can accept in the historic tradition of our forefathers who settled this state, the challenge that we too can accept our responsibilities and can command our own destiny in the American Way.



### ARKANSAS MEDICAL SOCIETY OFFICERS — 1957-1958

Seated (left to right)—Joe F. Shuffield, Past President; Clyde D. Rodgers, Speaker of the House of Delegates; Fount Richardson, Immediate Past President; T. Duel Brown, President; Louis K. Hundley, President-Elect; Euclid M. Smith, Past President. Standing (left to right)—John Wm. Smith, Treasurer; Fay B. Millwee, Vice Councilor; Elvin Shuffield, Councilor; R. B. Robins, Past President; J. W. Kennedy, Vice Councilor; H. King Wade, Sr., Past President; Joe Verser, Councilor; H. King Wade, Jr., Councilor; John P. Wood, Councilor; H. W. Thomas, Councilor; Hugh R. Edwards, Councilor; Stanley Applegate, Vice Councilor; Major E. Smith, Third Vice President; J. J. Monfort, Secretary; Perry Dalton, Councilor; Ross Fowler, Councilor; James M. Kolb, Chairman of the Council; Calvin R. Simmons, Vice Councilor; and Henry Hearnberger, Vice Councilor.

# PROCEEDINGS

## Eighty-First Annual Session

### Arkansas Medical Society

#### Robinson Auditorium, Little Rock

#### April 23rd, 24th, and 25th, 1957

#### FIRST GENERAL SESSION

Tuesday, April 23rd

Lecture Hall, Robinson Auditorium

The meeting was called to order by Frank Kumpuris at 9:00 a.m. The invocation was given by the Reverend Richard B. Hardie, Westover Hills Presbyterian Church, Little Rock. President Fount Richardson addressed the Society as reported on page one. The scientific session followed.

"Hoarseness, Diagnosis, and Treatment," Joseph Ogura, St. Louis

"Ulcerogenic Cerebral Lesions and Pancreatic Tumors," Hans G. Schlumberger, Columbus, Ohio

"Bladder Dysfunction in Children," Harold McDonald, Atlanta, Ga.

"The Problem of Scoliosis," John Cobb, New York City.

At noon, a luncheon for all members, presided over by William B. Harrell, was held in the Ballroom of the Hotel Marion.

#### SECOND GENERAL SESSION

Tuesday Afternoon, April 23rd

John Olson presided, presenting scientific movies at 1:00 p.m. and the following scientific program:

"Management of Eye Injuries by the General Surgeon," William B. Clark, New Orleans, La.

"Contributions of the Anesthesiologist to the Medical Profession," Steven J. Martin, Hartford, Conn.

"Gynecology," R. Gordon Douglas, New York City

"A New and Safe Approach to the Problem of Myocardial Revascularization," Robert P. Glover, Philadelphia.

The afternoon meeting closed with a Clinical Pathological Conference with a panel of the guest speakers of the day, moderated by Hans Schlumberger.

#### Tuesday Specialty Section Programs

The Section on Eye, Ear, Nose and Throat met on Tuesday, April 23rd in the Coach Room of the Hotel Marion and heard talks by the Chairman, William J. Schwarz, and the following scientific papers:

"Principles of Tympanoplasty," Charles D. Cyphers, El Dorado

"Present Status of Treatment of Carcinoma of the Larynx," Joseph Ogura, St. Louis.

The Arkansas Urological Society held a luncheon meeting in the Hotel Marion followed by a Pyelogram Clinic moderated by Harold McDonald of Atlanta.

#### FIRST SESSION

##### HOUSE OF DELEGATES

Tuesday Afternoon, April 23rd

Speaker C. C. Long called the meeting to order in the Lecture Hall of the Robinson Auditorium at 4:30 p.m.

Secretary Monfort called the roll of delegates.

S. J. Allbright, the Chairman of the Credentials Committee, reported that credentials of the delegates present had been examined and found correct and that a quorum was present.

The following delegates and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; ASHLEY, W. R. Cothorn; BAXTER, Ben N. Saltzman; BENTON, Lee A. Dean; BOONE, O. B. McCoy; CARROLL, James S. Priddy; CHICOT, Major E. Smith; CLARK, P. R. Anderson; COLUMBIA, U. A. Garred Sexton; CONWAY, Nils Peterson; CRAIGHEAD-POINSETT, Charles G. Swingle, Bascom P. Raney, J. H. Mc-



## PROCEEDINGS

Curry; DESHA, H. T. Smith; DREW, J. P. Price; FAULKNER, C. A. Archer, Jr.; FRANKLIN, Wm. C. Hensley; GARLAND, Frank M. Burton, W. R. Lee, Lon E. Reed; GREENE-CLAY, Gordon Duckworth; HEMPSTEAD, James W. Branch; HOT SPRING, C. R. Ellis; HOWARD-PIKE, E. V. Dildy; INDEPENDENCE, J. J. Monfort; JEFFERSON, Charles Reid, Calvin Simmons; JOHNSON, Guy Shrigley; LAWRENCE, J. B. Elders; LINCOLN, Charles W. Dixon; LONOKE, J. F. Gartmen; MILLER, A. A. Little; MISSISSIPPI, Eldon Fairley; MONROE, J. P. Williams, Jr.; NEVADA, Jack Harrell; OUACHITA, C. E. Gossett; PHILLIPS, R. L. Chrestman; POLK, L. K. Williams; POPE-YELL, J. A. Henry; PULASKI, James G. Stuckey, J. W. Downs, Fred Gray, Jr., Thomas G. Johnston, Wm. S. Orr, Jr., Jerome S. Levy, Bill Dave Stewart, Alfred Kahn, Jr., J. A. Harrell, Jr., Wm. L. Fulton, John G. Watkins, N. Henry Simpson, Jr.; RANDOLPH, W. E. Hamil; SCOTT, Harold B. Wright; SEBASTIAN, A. S. Koenig, L. A. Whittaker, Henry M. Sims; SEVIER, Wayne G. Pullen; UNION, George C. Burton; Charles D. Cyphers; WASHINGTON, Stanley Applegate, Rogers P. Edmondson; WHITE, Harold Short; WOODRUFF, Fay B. Millwee, Jr.

The following Councilors were present as members of the House of Delegates:

Second District, Hugh R. Edwards; Third District, J. Max Roy; Fourth District, Louis K. Hundley; Fifth District, Perry J. Dalton; Seventh District, H. King Wade, Jr.; Eighth District, Elvin Shuffield; Ninth District, Ross Fowler; Tenth District, James M. Kolb.

Speaker Long introduced the following honor guests of the House of Delegates:

Mrs. Robert H. Flanders, Manchester, New Hampshire, President, Woman's Auxiliary to the American Medical Association

Mrs. L. Gardner, Russellville, President, Woman's Auxiliary to the Arkansas Medical Society

Dr. William B. Stanton, fraternal delegate from the Texas Medical Association.

Upon the motion of Monfort and Dalton the House adopted as correct the minutes of the 80th Annual Session as published in the June, 1956, issue of the Journal of the Arkansas Medical Society.

Chairman of the Council Louis K. Hundley read the following report of the Council:

The Council met immediately following the 1956 Annual Session and elected Louis K. Hundley chairman and Alfred Kahn editor.

The Council met on August 5, 1956, and directed the president to nominate a member for another place on the Board of Directors of the Arkansas Heart Association as requested by that organization;

Approved Executive Committee action to send representatives to a meeting on Medicare in Chicago July 28-29 and heard the reports of the representatives who attended the meeting;

Voted to cooperate with the Department of Defense in implementing the Military Dependents Medical Care Act;

Directed the chairman to appoint a committee composed of members of the specialties and of general practitioners from the various councilor districts to establish a standard fee schedule for the Arkansas Medicare Program;

Directed that the administration of the Medicare Plan be handled by the Arkansas Medical Society headquarters office;

Voted to send representatives to St. Paul, Minnesota, to a meeting of six north-central states to discuss the implementation of the Medicare Program;

Directed the Legislative Committee of the Society to work for the passage of a new medical practices act, a bill to give the State Medical Board power of injunction, and a law calling for registration with the State Board of Health of all remedies and therapeutic devices sold in the State;

Deferred a decision on a proposed law to consolidate the boards of all medical institutions in Arkansas to give the members of the Council a chance to study the measure;

Voted not to participate with the State Board of Optometry in policing that profession in Arkansas;

Directed the editor and the executive secretary to attend a meeting on State Medical Journals to be held in Atlanta in November;

Voted to invite the editor of the Journal to all future meetings of the Council;

Directed that the new proposed Code of Medical Ethics be printed in the Journal so that the membership would be informed on the current status of the Code;

Approved plans of the Committee on Arrangements for the 1957 Annual Session;

Directed that a report of the committee to study a retirement plan for headquarters personnel be mimeographed and sent to the members of the Council for their study;

Voted to table a motion which would have provided honorary membership for members of the armed forces temporarily stationed in Arkansas.

The Council met on October 7, 1956, at 11:00 a. m. and noted that the Society had been successfully defended by its attorneys against a lawsuit for one-half million dollars;

Heard a report by W. R. Brooksher on the work of the Medicare Fee Schedule Committee and approved the use of the California Relative Value Scale, using a \$5.00 unit value;

## PROCEEDINGS

Heard and approved the audit report of the State Board of Medical Examiners and directed that the balance sheet be published in the Journal of the Arkansas Medical Society;

Approved the audit report of the Board of Examiners of Physical Therapists and directed that it be published in the Journal;

Approved the Constitution of the Arkansas State Medical Assistants Society;

Heard a discussion by the Provost of the Medical Center on the proposed budget for the Center for the coming biennium and decided to request the Legislative Committee to support the Center's appropriation measure;

Voted against relaxing the policies of the State Board of Medical Examiners to allow employment of a foreigner as a department head at the Medical School;

Referred to the Budget Committee a request for a contribution to help defray travel expenses for the winner of the Arkansas fair to the National Science Fair;

Voted to approve the Auxiliary's participation in a campaign for legislation to provide money for the Arkansas Children's Colony;

Elected J. H. McCurry of Cash, Arkansas, as the Arkansas "Doctor of the Year" nominee;

Directed that a retirement plan for headquarters employees be instituted;

Requested the Legislative Committee to study the advisability of revising the Medical Practice Act to include a statement that the practices of Radiology, Pathology, and Anesthesiology are the practices of medicine;

Directed the Executive Committee to complete negotiations with the Department of Defense for a contract for Military Dependents' Medical Care.

The Council met on November 18th and unanimously approved the Medicare Fee Schedule and contract which had been negotiated with the Department of Defense by the Executive Committee;

Authorized the executive secretary to purchase necessary equipment not to exceed \$2,000, to rent additional space, and employ additional personnel to handle the new program;

\$10,000 was set aside to be used in the payment of physicians' fees under the program.

The Council met February 3, 1957, at 11:00 a. m. and heard reports by the Legislative Committee that the osteopaths were attempting to obtain the privilege of practicing medicine and surgery in Arkansas;

Voted to ask the Legislative Committee of the Auxiliary to aid in a campaign to prevent the lowering of the standard of medical practice in Arkansas by the extension of privileges to osteopaths;

Heard Dr. John Hundley speak on certain amendments to the proposed new Medical Practices Act and requested the Society attorneys to discuss his proposed changes with him;

Selected W. R. Brooksher, Hugh Edwards, and Clyde Rodgers to serve as AMA Legislative Liaison men for Arkansas;

Appointed a committee to study the Arkansas Heart Association plan for cardiovascular clinics throughout the State;

Approved and adopted the report of the Polio Advisory Committee proposing a Society campaign to encourage everyone to be vaccinated;

Heard a complaint by Dr. John Watkins, speaking for a group of ophthalmologists who opposed the passage of the optometry bill (House Bill 10);

Heard a discussion by representatives of the Arkansas Pharmaceutical Association on a proposed measure to regulate the door to door sale of vitamins and other medicines;

Voted to instruct the Legislative Committee to oppose a measure to create a vice president of the University in charge of Medical Affairs;

Directed that the headquarters office send out a bi-weekly legislative bulletin during the Arkansas Legislature;

Approved the action of the executive committee in sending a representative to a Chicago meeting on Veterans Affairs;

Approved Executive Committee action in transferring an additional \$5,000 to the Medicare Fund for payment of physicians' services.

The Council met Monday night, April 22nd, and transacted the following business:

1. Mr. Schaefer reported on the progress of the Military Dependents Medical Care program, stating that the volume of claims had far exceeded all expectations and that the government had advanced \$48,000 for the payment of physicians' claims. The program is progressing very well and the Army has expressed satisfaction with its administration in Arkansas. Two people have been added to the headquarters staff to process the claims. All expenses in connection with the Medicare program are being paid by the government.

2. Accepted a recommendation by the Obstetrical-Gynecological Section of the Medicare Fee Schedule Committee that the fee for cesarean section in cases where ante partum care is not given by the surgeon be reduced by not more than \$50.00.

3. Considered the problem of hospitals which do not meet the Medicare requirement of twenty-four registered nursing service. The Society committee on hospitals, having previously studied the problem, recommended that the Arkansas Medical Society request the executive director of the Military Dependents Medical Care Act to modify the definition of an acceptable hospital to include any hospital licensed by the State of Arkansas.

4. Referred to the Committee on Legislation a resolution by the Hot Springs County Medical Society that all members of the Arkansas Medical Society be assessed \$20.00 for the purpose of defraying expenses in connection with the Legislature.

5. Nominated Dr. Ellery Gay to succeed himself on the Board of Trustees of the Arkansas Medical and Hospital Service, Inc.

6. Directed the Chairman of the Council to appoint a special committee to select nominees for presentation to the Governor for the vacancy occurring on the State Cancer Commission.



## PROCEEDINGS

7. Received a letter from the Arkansas Heart Association expressing appreciation for the Council's cooperation in the planned program of cardiovascular claims.

8. Decided to renegotiate the contract with the Veterans Administration for out-patient care.

9. Received a suggestion by Dr. Lawrason that the second House of Delegates meeting be changed so as not to conflict with the afternoon Medical Center program on Thursday.

10. Directed that the report of the Council for its first two annual session meetings be included in the report of the Council given at the first House of Delegates meeting.

11. Authorized the editor of the Journal and the executive secretary to attend a meeting of all state society journals to be held in Chicago in October.

12. Directed the editorial board of the Journal to decide when exception shall be made to the rule that authors be required to pay for illustrations in connection with their published articles.

The Council met at 7:30 a. m. Tuesday, April 23rd, and transacted the following business:

1. Approved the appointment of R. C. Dickinson, John Wood, and H. King Wade, Jr., to the special committee on nominations for the Cancer Commission.

2. Approved the appointment of a committee on resolutions composed of C. A. Archer, Jr., J. P. Price, and Mr. Peter Deisch.

3. Accepted and approved the report of the Budget Committee as modified to include increased Medicare revenue and expenses.

4. Voted to request the Insurance Commissioner to cancel the Arkansas license of the Physicians National Life Insurance Company of Birmingham, Ala.

5. Voted to take no action on Dr. Lawrason's request that the time of the second meeting of the House of Delegates be changed.

6. Voted to authorize the changing of the Society fiscal year and its audit period to coincide with the calendar year and to instruct the Budget Committee to conduct an internal audit of the Society accounts if and when they feel it necessary.

7. Approved a constitutional amendment proposed by the Committee on the Constitution which would set specific minimum and maximum membership for each committee.

Upon motion of Hundley and Eldon Fairley, the report was adopted by the House.

Published committee reports were referred to either Reference Committee Number One (Clyde D. Rodgers, Little Rock, Chairman; Henry Kirby, Harrison, and H. W. Thomas, Dermott) or to Reference Committee Number Two (Guy Shrigley, Clarksville, Chairman; C. R. Ellis, Malvern; L. A. Whittaker, Fort Smith).

A supplementary report of the Committee on Medical Education was read by

James M. Kolb in the absence of the Chairman, H. W. Thomas. The supplementary report was assigned to reference committee number one.

Joe Shuffield then presented the report of the Legislative Committee and upon his announcement that he was retiring as Chairman of the Committee and that Mr. Peter Deisch was resigning as Counsel after 30 years of service, both men were accorded a standing ovation. Mr. Deisch then spoke briefly expressing his appreciation for the opportunity to be of service to the medical society.

Upon the motion of Richardson and Verser, the House moved to have a resolution of appreciation of Dr. Shuffield and Mr. Deisch drawn up and adopted.

A supplementary report of the Committee on Insurance was read by its chairman, J. J. Monfort. His report was referred to reference committee number one.

Monfort then read a report of the Committee on Revision of the Constitution, recommending changes in the section on committee appointments. The report was referred to Reference Committee Number One.

Secretary Monfort then presented for second reading the following amendments previously presented at the 1956 Annual Session.

AMENDMENT NUMBER ONE: By-Laws (establishing standing committee on insurance)—

CHAPTER 8, Section 1 (a) (Section on Standing Committees)—Add as Committee Number ten: Committee on Insurance.

CHAPTER 8, Section 1 (a) (Section on Standing Committees)—Delete from Committee Number Five: The Sub-Committee "Blue Cross" so that it shall read: Chapter 8, Section 1 (a) 5. Committee on Hospitals (Hospital Liaison and Arkansas Hospital Association).

CHAPTER 8, Section 10 (Committee on Arrangements)—Change to: Section 11 (Committee on Arrangements).

CHAPTER 8—Add as Section 10: The Committee on Insurance shall deal with all matters pertaining to insurance, including Liaison with Blue Cross-Blue Shield.

Upon the motion of Monfort, seconded by Hundley, the House adopted the amendment.

AMENDMENT NUMBER TWO: (Selecting annual meeting place two years in advance)—

ARTICLE VIII, Section 2 (Constitution)—Add at end of first sentence "two years in advance."



## PROCEEDINGS

CHAPTER 11, Section 1 (By-Laws)—Delete "preceding" from first sentence and add at end of sentence "two years in advance."

With these changes the sections would read as follows:

ARTICLE VIII, Section 2 (Constitution) — The place for holding each annual session shall be decided by the House of Delegates two years in advance. After conferring with the President and Secretary of the Society, the time for holding each Annual Session shall be decided by the Committee on Arrangements of the component society of the county in which the meeting is to be held.

CHAPTER 11, Section 1 (By-Laws)—The Society shall hold an annual session at such place as has been fixed by the House of Delegates at the annual session two years in advance.

Upon the motion of Monfort, seconded by Kolb, the House adopted the amendment.

J. A. Harrell, Jr., introduced a resolution commending Dr. Katharine Dodd and urging her to remain in Arkansas. He moved its adoption and it was seconded by Fay B. Millwee. The House unanimously adopted the resolution.

President Richardson read telegrams of good wishes and regret at not being able to be present from the following:

Mr. C. P. Loran, Southern Medical Association  
Dr. Malcom E. Phelps, President, American Academy of General Practice  
Dr. Wm. R. Alstadt, President, American Dental Association.

C. A. Archer presented a resolution urging that the various peace officers and the Highway Patrol be requested to see that laws with reference to stray stock are enforced and also a resolution recommending that each county medical society select representatives to meet with officials of the University of Arkansas School of Medicine at regular intervals.

Archer moved the adoption of both resolutions, seconded by Saltzman. The House unanimously approved both resolutions.

Speaker Long announced that a vacancy would occur on the Arkansas State Medical Board for the position from the Third Congressional District and designated a time and place of meeting for members from that district to select a nominee to fill the vacancy.

Delegates from the various Councilor districts held meetings on the floor and selected the nominating committee as follows: First District, B. P. Raney; Second

District; S. J. Allbright; Third District, Fay B. Millwee; Fourth District, H. T. Smith; Fifth District, C. E. Gossett; Sixth District, R. C. Dickinson; Seventh District, C. R. Ellis; Eighth District, Jerome Levy; Ninth District, Rogers P. Edmondson; Tenth District, A. S. Koenig.

The House adjourned at 6:15 P.M.

### Tuesday Evening, April 23rd

The Little Rock Academy of Surgery held a Dutch Treat Dinner for the members of the Arkansas Medical Society and their wives at the Hotel Marion.

The Arkansas Radiological Society held a dinner meeting for members and wives in the Colonial Room of the Hotel Marion.

### THIRD GENERAL SESSION

#### Wednesday Morning, April 24th

The meeting in the Lecture Hall of the Robinson Auditorium opened at 9:00 a.m. with John Wood presiding. The Reverend Michael Carroza, All Souls Church, Scott, Arkansas, gave the invocation.

R. B. Robins spoke on the World Medical Association and the scientific program followed:

"Indications and Contra-Indications in Use of Ultrasonics in Medicine," John Aldes, Los Angeles

"The Present Day Treatment of Rheumatoid Arthritis," J. J. Bunim, Bethesda, Maryland

"The Problem of the Oversized Infant," J. Robert Willson, Philadelphia, Pa.

"Changing Concepts in Primary Tuberculosis," Alex Steigman, Louisville, Ky.

"Diagnosis and Management of Anemias," Frank Bethell, Ann Arbor, Michigan

"Pulmonary Hypertension," H. B. Burchell, Rochester, Minnesota.

A General Session luncheon for all members was held in the Ballroom of the Hotel Marion with Jerome Levy presiding.

### FOURTH GENERAL SESSION

#### Wednesday Afternoon, April 24th

Randolph Ellis presided at the Fourth General Session which began at 1:00 p. m. in the Lecture Hall of the Robinson Auditorium with scientific motion pictures followed by the program.

"Hypnosis in Medicine and Surgery," Seymour Hershman, Chicago

"Hypnosis in Obstetrics and Gynecology," William S. Kroger

"A Critique of the Tranquilizing Agents," Howard P. Rome, Rochester, Minnesota

"Urticarial Diseases," Stephen Rothman, Chicago.

A Clinical Pathological Conference moderated by the Arkansas Pathological Society closed the meeting.

The following specialty section programs were held on Wednesday, April 24th:

The Arkansas Dermatological Association held its annual meeting at the University of Arkansas Medical Center. Dr. Stephen Rothman was the speaker at the meeting.

The Arkansas Psychiatric Society met in the Veterans Administration Hospital in North Little Rock with Dr. Howard P. Rome as guest speaker.

The Section on Obstetrics and Gynecology held a luncheon meeting in the Coach Room of the Hotel Marion.

The Section on Internal Medicine met beginning at 1:00 p. m. in the Hotel Marion.

A Pediatric Symposium was held beginning at 2:00 p. m. in the Hotel Marion.

### Wednesday Night, April 24th

Wednesday night, April 24th, the Little Rock Academy of Medicine held a dutch treat dinner for the members of the Society and their wives.

### Thursday Morning, April 25th

The commercial and scientific exhibits remained open in the Robinson Auditorium from 8:00 a. m. until 12:00 noon.

The scientific meeting of the Society moved to the new University of Arkansas Medical Center where ward rounds, clinics and surgical demonstrations were attended by the members beginning at 8:00 a. m.

At 10:30 the professional dedication of the new Medical Center was begun. The Dedicatory address was given by Dr. Lewis Webster Jones, a former president of the University of Arkansas.

Numerous notables were among those in the academic parade and officers of the Arkansas Medical Society were introduced from the stage by University President John Tyler Caldwell.

## MEMORIAL SERVICE

Thursday Afternoon, April 25th  
University of Arkansas Medical Center  
1:00 p. m.

Fount Richardson, President, presided at a Memorial Service honoring members who had passed away during the year. The invocation was given by Dr. Walter O'Neal, Little Rock, followed by a selection by the Medical School Men's Chorus. President Richardson read the names of the deceased members:

J. Leo Aday, Little Rock, February 15, 1957  
E. W. Bentzien, Mountain Home, April 20, 1956  
Robert Caldwell, Little Rock, December 3, 1956  
C. H. Dickerson, Conway, March 27, 1957  
C. W. Donaldson, Green Forest, March 12, 1957  
Montague Fink, Helena, March 1, 1957  
James C. Gilliam, Des Arc, December 11, 1956  
S. C. Grant, Van Buren, November 16, 1956  
T. W. Hardison, Morrilton, April 7, 1957  
W. J. Hunt, Warren, October 21, 1956  
Robert F. Hyatt, Monticello, April 11, 1957  
James E. Johnson, Fort Smith, November 13, 1956  
Charles H. Kimbro, Tillar, September 2, 1956  
L. M. Lile, Hope, November 17, 1956  
W. A. Moore, Rogers, January 19, 1957  
Henry L. McClendon, Palestine, February 17, 1957  
Elwood H. McCray, Malvern, July 7, 1956  
John E. Parsons, Little Rock, March 25, 1957  
E. W. Pillstrom, Ozark, April 4, 1957  
Robert H. Ray, West Memphis, July 4, 1956  
William F. Robins, Ozan, February 23, 1957  
James W. Ryburn, Pocahontas, September 24, 1956  
Homer A. Stroud, Jonesboro, October 1, 1956

Mrs. Jack Kennedy read the names of the following deceased members of the Auxiliary:

Mrs. M. D. Duncan, Murfreesboro, April 28, 1956  
Mrs. W. E. Gray, Little Rock, May 14, 1956  
Mrs. J. A. Thompson, Dermott, August 23, 1956  
Mrs. C. H. Kimbro, Tillar, December 30, 1956  
Mrs. E. E. Barlow, Dermott, January 21, 1957  
Mrs. J. N. Pate, Arkadelphia, March 1, 1957

The Memorial Address was given by Dr. Carl E. Wenger of Little Rock.

The Medical School Men's Chorus sang.

The benediction was pronounced by Dr. Walter O'Neal, Little Rock.



## MEDICAL CENTER PROGRAM

Thursday Afternoon, April 25th

A Symposium on Current Problems of Education in the Health Sciences was held at 2:30 p. m. at the University of Arkansas Medical Center. Talks were presented as follows:

"Meeting the Future in Medical Education," Ward Darley, Chicago

"Financing a University Medical Center," Albert Snoke, New Haven, Conn.

"Recruitment of Scientific Manpower," Howard L. Bevis, Washington, D. C.

"Federal Support for Construction of Medical Facilities," The Honorable Oren Harris, Washington, D. C.

## FINAL SESSION

### HOUSE OF DELEGATES

Thursday Afternoon, April 25th

2:00 p.m., Room 2-E22

#### University of Arkansas Medical Center

Speaker Long called the House of Delegates to order. The following members and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; BAXTER, Ben N. Saltzman; BENTON, Lee A. Dean; BOONE, D. L. Owens; BRADLEY, George F. Wynne; CHICOT, Major E. Smith; CLARK, P. R. Anderson; COLUMBIA, Paul Sizemore; CONWAY, Nils Pehrson; CRAIGHEAD-POINSETT, Charles G. Swingle, Joe Verser, Bascom P. Raney; DESHA, H. T. Smith; DREW, J. P. Price; FRANKLIN, Wm. C. Hensley; GARLAND, W. R. Lee, James Leatherman, Euclid Smith; GRANT, Miles F. Kelly; GREENE-CLAY, Gordon Duckworth; HEMPSTEAD, James W. Branch; HOT SPRING, Paul Means; INDEPENDENCE, J. J. Monfort; JEFFERSON, Ralph Wooley, Calvin Simmons; JOHNSON, Guy Shrigley; LINCOLN, Charles W. Dixon; LONOKE, J. F. Gartman; MISSISSIPPI, Eldon Fairley; NEVADA, C. A. Hesterly; OUACHITA, C. E. Gossett; PHILLIPS, R. L. Chrestman; POLK, L. K. Williams; PULASKI, James G. Stuckey, J. W. Downs, Fred Gray, Jr., Thomas Johnston, Wm. S. Orr, Jerome Levy, Bill Dave Stewart, J. A. Harrell, Jr., Wm. L. Fulton, John G. Watkins, Jr., John McC. Smith, Edgar Easley; RANDOLPH, W. E. Hamil; SEBASTIAN, W. R. Brook-

sher, A. S. Koenig, Elmer M. Purcell; SEVIER, R. C. Dickinson; UNION, George C. Burton; WASHINGTON, Stanley Applegate, Fount Richardson; WHITE, Harold Short; WOODRUFF, Fay B. Millwee.

The following Councilors were present as members of the House of Delegates:

First District, Joe Verser; Second District, Hugh R. Edwards; Fourth District, Louis K. Hundley; Fifth District, Perry Dalton; Sixth District, John P. Wood; Seventh District, H. King Wade, Jr.; Eighth District, Elvin Shuffield; Ninth District, Ross Fowler; Tenth District, James M. Kolb.

S. J. Allbright presented the report of the nominating committee:

#### FOR PRESIDENT-ELECT:

Louis K. Hundley, Pine Bluff  
P. R. Anderson, Arkadelphia

#### FIRST VICE PRESIDENT:

John D. Olson, Fort Smith

#### SECOND VICE PRESIDENT:

R. C. Hooper, Jonesboro

#### THIRD VICE PRESIDENT:

Major E. Smith, Dermott

#### SECRETARY:

J. J. Monfort, Batesville

#### TREASURER:

John Wm. Smith, Little Rock

#### SPEAKER OF THE HOUSE OF DELEGATES:

Clyde D. Rodgers, Little Rock

#### VICE SPEAKER OF THE HOUSE OF DELEGATES:

C. Lewis Hyatt, Monticello

#### COUNCILORS:

First District: Joe Verser,  
Harrisburg

Third District: J. Max Roy,  
Forrest City

Fourth District: H. W. Thomas,  
Dermott

Fifth District: Perry Dalton, Camden

Seventh District: H. King Wade, Jr.,  
Hot Springs

## PROCEEDINGS

Ninth District: Ross Fowler,  
Harrison

### VICE COUNCILORS:

First District: Eldon Fairley, Wilson

Third District: Fay B. Millwee,  
McCrory

Fourth District: Calvin Simmons,  
Pine Bluff

Fifth District: Henry Hearnberger,  
Stephens

Seventh District: H. D. Luck,  
Arkadelphia

Ninth District: Stanley Applegate,  
Springdale

### DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION:

R. B. Robins, Camden

### ALTERNATE DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION:

C. C. Long, Ozark.

Upon the motion of Fred Gray, seconded by T. Duel Brown, the report of the Nominating Committee was approved and accepted by the House.

P. R. Anderson withdrew his name urging the unanimous election of Louis K. Hundley as president. Upon the motion of Gordon Duckworth, seconded by James M. Kolb, the House unanimously elected Louis K. Hundley as president-elect.

Speaker Long asked for nominations from the floor and Paul Means nominated J. W. Kennedy of Arkadelphia for the position of vice councilor for the Seventh District. Upon the motion of H. T. Smith and Elvin Shuffield all officers except vice councilor for Seventh District were elected by acclamation.

Upon written ballot, J. W. Kennedy was elected vice councilor for the Seventh District.

The Report of Reference Committee Number One was read by Chairman Clyde D. Rodgers:

### REPORT OF REFERENCE COMMITTEE NUMBER ONE

CLYDE D. RODGERS, Little Rock, Chairman

Henry V. Kirby, Harrison

H. W. Thomas, Dermott

Reference Committee Number One met during the Annual Session of the Arkansas Medical Society at the Hotel Marion in Little Rock, Arkansas, on April 23, 1957, and considered the various com-

mittee reports and recommendations which had been referred to it. The committee reports as follows:

It recommends approval of the following committee reports as published in the March, 1957, issue of the Journal of the Arkansas Medical Society:

Report of the Committee on Public Health

Report of the Sub-Committee on Rural Health

Report of the Sub-Committee on Maternal and Child Welfare

Report of the Sub-Committee on Industrial Health

Report of the Sub-Committee on Tuberculosis

Report of the Sub-Committee on Liaison with the State Board of Health

Report of the Committee on Hospitals

Report of the Polio Advisory Sub-Committee

Report of the Advisory Committee to the Arkansas State Medical Assistants Society

Report of the Committee on Senior Medical Day

Report of the First Councilor District Professional Relations Committee

Report of the Second Councilor District Professional Relations Committee

Report of the Third Councilor District Professional Relations Committee

Report of the Fourth Councilor District Professional Relations Committee

Report of the Fifth Councilor District Professional Relations Committee

Report of the Sixth Councilor District Professional Relations Committee

Report of the Seventh Councilor District Professional Relations Committee

Report of the Eighth Councilor District Professional Relations Committee

Report of the Ninth Councilor District Professional Relations Committee

Report of the Tenth Councilor District Professional Relations Committee

Report of the Arkansas State Cancer Commission.

Reference Committee Number One met during the Annual Session of the Arkansas Medical Society in Little Rock on April 25, 1957, and considered supplemental reports by various committees. The committee reports as follows:

It recommends approval of the following supplemental committee reports as read before the House of Delegates on Tuesday, April 23, 1957:

Supplemental Report of the Committee on Medical Education

Report of the Secretary in regard to proposed changes in the By-Laws

Supplemental Report of the Committee on Insurance

Supplemental Report of the Committee on Hospitals.

Upon motion by Clyde D. Rodgers, seconded by Hugh R. Edwards, the report was adopted by the House.

Report of Reference Committee Number Two was read by Chairman Guy Shrigley:



## REPORT OF REFERENCE COMMITTEE NUMBER TWO

GUY SHRIGLEY, Clarksville, Chairman

C. R. Ellis, Malvern

L. A. Whittaker, Fort Smith

Reference Committee Number Two met during the Annual Session of the Arkansas Medical Society at the Hotel Marion in Little Rock, Arkansas, on April 23, 1957, and considered the various committee reports and recommendations which had been referred to it. The committee reports as follows:

It recommends approval of the following committee reports as published in the March, 1957, issue of the Journal of the Arkansas Medical Society and reports submitted from the floor of the House of Delegates:

Report of the Committee on Medical Education  
Report of the Sub-Committee on Liaison with Blue Cross-Blue Shield  
Report of the Sub-Committee on State Health and Medical Resources for Civil Defense  
Report of the Sub-Committee on Liaison with the Nursing Profession  
Report of the Committee on the Auxiliary  
Report of the Committee on Veterans Administration Affairs  
Report of the Committee on Scientific Program and Arrangements for Annual Session  
Report of the Insurance Committee  
Report of the Budget Committee  
Report of Delegate to the American Medical Association (Dr. Kolb, Delegate)  
Report of Delegate to the American Medical Association (Dr. Robins, Delegate)  
Report of the Executive Secretary  
Report of the Arkansas State Advisory Committee to the Selective Service System  
Report of the Arkansas State Medical Board  
Report of the Committee on Public Relations  
Report of the Arkansas State Board of Health  
Report of the Legislative Committee

This committee recommends the Council study the feasibility of giving a per capita allotment of \$5.00 for each active member of the Society to the American Medical Education Foundation as outlined in Dr. J. M. Kolb's report of the American Medical Association meeting.

John Wm. Smith proposed that the Brooksher Fund for Medical Education be augmented by a \$5.00 assessment instead of sending any such assessment to the American Medical Education Foundation. Because the report of Reference Committee Number Two, then under discussion, had not been accepted or referred, Dr. Smith was ruled out of order and requested to present his proposal later in the meeting. The matter was not again brought up.

Upon the motion of Guy Shrigley and A. S. Koenig, the report of Reference Committee Number Two was approved and accepted by the House.

Louis K. Hundley read the supplementary report of the Council as follows:

## SUPPLEMENTAL REPORT OF THE COUNCIL

The Council met on Wednesday, April 24th, and transacted the following business:

1. Approved the following list for life membership:

C. C. Townsend	R. H. Huntington
E. J. Byrd	J. B. Wharton, Sr.
T. E. Rhine	Daniel McCall
J. L. Rushing	

2. Voted affiliate membership for the following physicians:

### Disabled

J. D. Riley	S. T. W. Cull
Frank Norwood	Bryce Cummins
Shelby Atkinson	James D. Hayes
H. L. Brown	Ralph A. Law
T. E. Burgess	Guy Hodges

### Financial Hardship

J. K. Donaldson

### Retirement

George B. Alcott	B. W. Duncan
L. T. Evans	R. L. Dawson
M. S. Craig	Charles F. Bloom
Paul Jeffery	Joseph P. DeLaney
W. M. McRae	W. A. Fowler
H. M. Kitchens	Frank N. Gordon
Homer A. Higgins	

### Residency Training

Orval E. Riggs	O. W. Davenport
E. R. Duty	Anthony D. DePalma
Howard Kitchens	

### Military Members

Curtis Jones, Jr.	W. H. Handley, Jr.
Carie Dan Buckley	

3. Referred to the Insurance Committee a resolution by the Jefferson County Medical Society calling for an increase in fees for insurance examinations.

4. Voted to request the State Board of Medical Examiners to furnish each member of the Medical Society with a copy of the new Medical Practices Act.

5. Voted to request the Resolutions Committee to draw up a resolution urging county societies to lead in the reactivation of their civil defense organizations.

6. Directed that the incoming president appoint a member to fill the vacancy on the Committee on Liaison with the Nursing Profession brought about by the death of Dr. Robert Hyatt.



7. Voted to submit the names of Dr. Frank Kumpuris and Dr. Wm. Harrell to the Governor for his appointment to the Arkansas State Cancer Commission.

The Council met on Thursday, April 25th, and transacted the following business:

1. Approved resolutions expressing the appreciation of the Society to the Marion Hotel, Robinson Auditorium, City of Little Rock, and others who have helped to make the 81st Annual Session a success.

2. Discussed a resolution regarding the private practice of medicine at the Medical Center and voted general agreement with the principle that such private practice should be limited to referrals and to such services available at the Center which are not available elsewhere in this area.

3. Voted to recommend to the House of Delegates that annual State Society dues be increased \$5.00 per year.

Dr. Hundley then read a proposed resolution commending Dr. Shuffield and Mr. Deisch. Upon the motion of Hundley and W. R. Brooksher, both the report and the resolution were unanimously adopted by the House.

Hundley then moved that, in accordance with the Council recommendation, the House vote an increase in dues of \$5.00 a year raising state dues to \$30.00 annually.

As questioning on the reason for a dues increase began, Dr. Hundley moved that the House go into executive session and that visitors be excused.

After some discussion and a review of recent increases in expenses and anticipated additional expense of future programs of a Public Relations nature, the House voted unanimously to increase the dues as recommended.

Upon a motion by Duckworth, seconded by Hundley, the Executive Session adjourned and the press and visitors were invited to return to the general meeting of the House of Delegates.

Speaker Long announced the nomination of H. J. Hall of Clinton to succeed himself on the State Medical Board from the Third Congressional District. Upon the motion of Kolb, seconded by Elvin Shuffield, the House unanimously approved the selection and ordered it submitted to the Governor.

The House adjourned at 4:00 p. m.

## FINAL GENERAL SESSION

Thursday, April 25th, 4:00 p. m.

University of Arkansas Medical Center

Richardson called the meeting to order and made his remarks of appreciation.

At the request of President Richardson, Past Presidents H. T. Smith and Euclid Smith escorted Dr. Brown to the rostrum where he took the oath of office.

President Brown addressed the meeting as follows:

I am very happy to have the honor of serving as president of the Arkansas Medical Society. To me, this is really a big event, although I realize that many of you look upon it merely as a formality in the process of keeping an organization alive. One president goes and another comes in. It's just like I was reading somewhere about civilization. Civilization was described as a condition in which one generation pays the debts of the last generation by issuing bonds for the next generation to pay.

Thus Dr. Fount Richardson shoves off all his old problems and troubles upon me—the new president. I'll carry them along for a year, add a few more, and pile the whole load on Dr. Louis Hundley who follows me. That's the way the process goes until the load gets so heavy no one individual can carry it, and everybody has to pitch in and help out. It is not so much that the load is so heavy or Doctor Richardson left such problems and tasks for me to inherit, but rather there can't be much of a success of any program unless we have team work and cooperation all through the organization.

I subscribe to the belief of William B. Given, Jr., who wrote in Forbes magazine as follows: "There are few, if any, jobs in which ability alone is sufficient. Needed also are loyalty, sincerity, enthusiasm and team play."

This is a thought which strikes me as being very important for us. We cannot depend upon the ability of our new officers—particularly your president—your committee chairmen or others. Ability alone is not sufficient. There must be loyalty, sincerity, enthusiasm and team play. That is something we can get only if everybody joins in to do what they can to help make a success of our Arkansas Medical Society.

I am indeed fortunate to take office following the leadership of Doctor Richardson who did such a good job. The only difficulty is that he has set such a high standard that it will not be easy for me to follow. Nevertheless, I shall do my best as I hope the coming year will be filled with achievement made possible by the fine spirit and eager cooperation of all.

The importance of achievement—the going forward—for an organization of this type cannot be over-emphasized. Activity creates interest and attendance which leads to good fellowship. The sign of a flourishing society has always been its activity. A busy society is a successful society.

That is why I would like to see our members active and full of enthusiasm during the coming year. We can't afford to go to sleep or we might end up like described in this little story.

A negro boy was going through a cemetery when he read this inscription on a tombstone: "Not dead but sleeping." The lad scratched his head a while and remarked to himself: "He sho' ain't foolin' nobody but hisself."

If we allow our Society to go to sleep we won't be fooling anybody but ourselves. We'll be a dead organization and nobody wants to be a part of a dead organization. Therefore, we will try to make the next year one filled with life and the joy of living. I hope nobody will make excuses if they are asked to serve on committees or lend assistance in any way. We are not going to impose too much on any one member, but we're not going to die on our feet either.

Now that I've warned you what to expect for the coming year, I suppose you can start regretting your ill-considered action in electing me president. It's just like a quick marriage—marry in haste and repent at leisure. You have a whole year to repent for your mistake. In the meantime, I want to thank you for the confidence you have shown in me and the high honor bestowed. I shall try to do my best to be worthy of being president of the Arkansas Medical Society.

President Brown requested Past Presidents H. T. Smith and Fount Richardson to escort President-Elect Louis K. Hundley to the rostrum and presented him to the Society.

Dr. Hundley expressed his appreciation to the members for the honor that they had bestowed on him.

Upon behalf of the Pulaski County Medical Society, Elvin Shuffield extended an invitation for the Arkansas Medical Society to hold its 1958 meeting in Little Rock.

On behalf of the Garland County Medical Society, H. King Wade, Jr., invited the Arkansas Medical Society to hold its 1958 meeting in Hot Springs.

A. S. Koenig extended an invitation on behalf of the Sebastian County Medical Society for the Society to hold its 1959 meeting in Fort Smith.

W. R. Brooksher moved that the Society accept the invitation from the Garland County Medical Society for 1958. Upon second by John Watkins, the House voted unanimous approval.

Upon the motion of H. King Wade, Sr., and Edgar Easley, the House voted to accept the invitation of the Sebastian County Medical Society for the 1959 meeting.

The Society adjourned its 81st Annual Session at 4:30 p. m.

## COUNCIL MEETING

The new Council met immediately following adjournment of the General Session and elected James M. Kolb of Clarksville as chairman and Alfred Kahn, Jr., of Little Rock was elected as editor of the Journal.

### Thursday Night, April 25th

The Annual State Society Party was held Thursday night at 8:00 p. m. in the Ballroom of the Hotel Marion. Dancing continued until 12:00 midnight.

Prizes were presented to the following winners in the golf tournament held on Monday and Tuesday:

First Place: Samuel V. Richmond, Little Rock

Second Place: Elbert Wilkes, Little Rock

Third Place: Horace Murphy, Little Rock;  
John P. Wood, Mena; G. Grimsley Graham, Little Rock.

## ATTENDANCE

Physicians .....	506
Medical Students .....	31
Visitors .....	5
Exhibitors .....	107
Auxiliary .....	202
	<hr/>
	851

## REPORT OF THE LEGISLATIVE COMMITTEE

JOE F. SHUFFIELD, Chairman

Your legislative committee has had a lot of work to do this year because of being the legislative year. The legislature began on January 14, 1957, and ended March 14, 1957. Your committee worked very diligently upon the following legislation:

The most important bill that was introduced in the legislature so far as our society is concerned, was HB 14, known as the Hall Bill. It was passed and signed by the Governor, and is now Act 198 of 1957. This Act is known as the Medical Practices Act. It re-defines the practice of medicine in the light of present conditions. It provides for hearings before the Board of Examiners for those who are charged with deviation from the accepted standards, and gives the Board authority to discipline the offender by suspending his right to practice medicine, or it may even revoke the license of a physician who violates reasonable rules and regulations, as set forth in this Act. It also provides ample safeguards to the accused by giving full right of appeal to the Courts of the State of Arkansas. It contains provisions long needed, giving the courts authority to issue restraining



## PROCEEDINGS

orders or injunctions to prevent the unlawful practice of medicine.

HB 10, which is now Act 102, is a measure in which some of our members were interested, while others were violently opposed to it. This Act was concerned chiefly with the advertising of opticians. Your legislative committee carefully avoided a discussion of this bill with anyone because of the division among those who were interested in this subject.

HB 54, now Act 66 of 1957, provides that a person who has a license to practice prior to 1929 may receive a Basic Science certificate from the Basic Science Board, provided that such physician has previously made satisfactory grades in the required subjects before the State Board. This Act makes no changes in the existing Basic Science law, save that it provides for the actual issuance of a certificate, to a physician who wishes to move from this state to another.

HB 58 provides for the appointment of a vice president in charge of medical affairs at the Medical Center. It also provides for a Medical Center Advisory Board, to be appointed—three by the Trustees of the University of Arkansas and four by the governor of Arkansas. The duty of this Advisory Committee is to assist the vice president in problems, and make recommendations to the Board of Trustees. Your committee carefully considered this bill, but we concluded that at least more time should be allowed to the present management before proceeding with such a change. In other words, your committee feels that our state society does not want to divorce the Medical Center from the University of Arkansas. The author of this bill, after discussing it with your committee did not attempt to bring this bill to the floor for a vote. It, therefore, died on the calendar on March 14, 1957.

HB 88 was identical to SB 53. It would have regulated the practices of the registered and practical nurses. The two groups were unable to agree on the composition of the Board, and also on the conditions under which the practical nurses would perform their duties. A crippling amendment was adopted in the Senate and no further effort was made in either the House or the Senate to press its passage. Therefore, this bill died upon the calendar March 14, 1957. Your legislative committee took no part in a discussion of either of these two bills since both groups of nurses are so valuable to our profession.

HB 86 was introduced by Mr. Crank of Little River County. It provided for a composite board, and provided also that the osteopaths would have full rights to practice medicine and surgery as they do in many states in this nation. They had an energetic and very capable group working persistently and continuously for about four weeks. The legislature came very near acting upon this bill before we mustered the strength of our society, but your legislative committee was able to stimulate the interest of others in this state, and this bill was also defeated. Your committee appreciates the splendid support given by the membership of our society in every county of the state, but your committee felt rather depressed before such generous support was given to us.

HB 225 was very similar, but actually more vicious than HB 86. It would have provided for the osteopaths to have their own board, and control themselves and give the osteopaths a license to practice any form of medicine and surgery that they so desired. After we so successfully defeated HB 86, the author of this bill, Mr. Crank, never did get it on the floor for a vote, so it died on the calendar on March 14, 1957.

HB 91, now Act 58 of 1957, provides that the chiropractors must make proof of post-graduate study each year before they are eligible to receive a certificate to practice their type of profession.

HB 124 provided for the establishment of the Arkansas State Board of Practical Nurses Examiners. It also provided for the qualifications of members of its Board, and also for the licensing of practical nurses. This bill was never called for a vote.

HB 272, now Act 168 of 1957, simply increased the fees to be paid by nurses for taking examinations.

HB 488, now Act 413 of 1957, relates to the admissions to the State Hospital. A patient may be admitted to a public or private hospital for treatment of mental disorders, alcoholism or drug addiction, provided a psychiatrist issues a certificate that such a person is suffering from psychoses and is likely to become harmful to himself or society, and under those conditions, he may be there confined. It also provides that no action shall be brought against any hospital, or its governing body, or against any nurse or physician who aids in the confinement, to recover damages therefor.

HOUSE CONCURRENT RESOLUTION No. 37 was introduced and passed, commending the Arkansas Medical Society for its support of the Salk Vaccine program. This was done without solicitation by your committee.

SB 88, now Act 139 of 1957, by Mr. Harvey, relates to admissions to the School of Medicine. It seeks to secure an increase in the number of graduates by providing that there shall be 90 admissions to the freshman class from the congressional districts, as is now required, and not more than 30 additional admissions from the state at large, without being charged against the district quota. It further provides that the number of admissions may be reduced to not less than 90, if funds are insufficient to properly train more than that number.

SB 180, now Act 187 of 1957, appropriated \$2,500,000 outright, plus \$1,000,000 for the State Welfare Department, to be used in matching a like amount from the Federal Government, thus providing a total possible sum of \$4,500,000 to be devoted to the schools of medicine, nursing and pharmacy, and the hospital and clinic. The present bed occupancy is 236, and after July 1, 1957, 78 additional beds will be put in use. A further increase to a total of 366 beds may be expected within the next two years. It may be several years before sufficient money is available to operate the institution to its capacity of 450 beds.

SB 241, now Act 533 of 1957, originally appropriated \$75,000 for the Cancer Control Commis-



sion, but the governor vetoed all of this appropriation except \$16,880. He vetoed that portion which concerned aids, grants, and contributions.

SB 340, now Act 502 of 1957, appropriated \$300,000 for the completion of construction at the Medical Center.

SB 390, now Act 507 of 1957, appropriates \$45,000 for the year of 1957 and 1958, and \$50,000 for the year of 1958 and 1959, to be used as loans to medical students. Appropriations have been made each session of the legislature since 1949, but this appropriation is the largest amount for loans which the legislature has ever appropriated before.

SB 405, now Act 513 of 1957, makes appropriation for the Welfare Department, for the employment of additional personnel for the administration of the medical program, to be spent under an agreement between the welfare department and the medical center. The amount of this appropriation is \$16,200.

SB 411, now Act 568 of 1957, revises the quotas for use of facilities at the Medical Center. It provides charges for exceeding the assigned quotas. In December of 1956 a report was made and filed by competent professional and consultants, at the expense of Mr. Winthrop Rockefeller. Among other things it showed that more than half of the admissions were from Pulaski County. This bill fixes the number that should be admitted from each county, and the larger cities, based upon population. This Act provides that when that quota is filled, the county or city must pay the actual cost of the care of all patients who exceed that quota, and if it is not paid turn-back money from the state to the county is proportionately withheld. This Act may provide as much as a half million dollars, to be used at the medical center that otherwise would not be provided.

SENATE CONCURRENT RESOLUTION No. 18 by Mr. Harvey sets forth that the University of Arkansas Board of Trustees are directed to establish policies which will permit the admission of patients who are able to pay for their medical care, at the medical center and then the clinic. This resolution was discussed in the Senate late in the afternoon, and without study by the various senators, and without the knowledge of your legislative committee. It was passed immediately and sent to the House early the next morning, and it likewise passed within a few minutes through the House without study by the House members. This resolution sounds like the Medical Center is going into the practice of medicine, in competition with members of this society, but resolutions are not laws and they are practically never discussed by members of the House or Senate. In reality they mean very little. If such resolutions were laws much discussion would take place; public hearings would be held, but such resolutions can pass within a few minutes, as this one did, and we had no opportunity to make any argument to cause its defeat.

SENATE RESOLUTION No. 18 by Mr. Bearden sets forth that the 1949 law which created the Medical Center, required it to set aside one-third of its beds for the acute mental cases, to be operated in conjunction with the State Hospital. This resolution inquires about what has been done

or what is contemplated, to carry out the mandate of this basic law which created this resolution. It has not heretofore been feasible to put such a program into operation, but a continued study should be made by the Legislative Council or some other legislative group. We must not be caught two years hence without an adequate answer to this problem.

The legal counsel and chairman of the legislative committee, have observed our progress in legislation for a quarter of a century, and we have seen a steady improvement in the standards of our profession. We have seen many legislators during this time, who have been very kind to our profession. We have also seen many governors who have been courteous, kind and generous to our profession. With our great, beautiful and spacious medical center, it makes our work look like nothing further is needed to be done in the future except to support this institution in its operation, but we wish to sound a warning that there are still possibilities for the future legislative committee, and particularly do we think we see that the standards of our profession will be lowered, or attempted to be lowered, in the near future, particularly by the osteopaths. We can see a great danger, unless this society stays alert, and keeps prepared to so influence future legislation, that osteopaths will not be permitted to practice medicine and surgery in competition with our profession until they have reached the same standards of our own profession, or others equal to ours, and when they reach that point in their training they can become members of our own society, and thereby eliminate osteopathy as a teaching institution. We particularly call your attention to the type of teaching that they have in their schools, and especially the type of teaching that they carry on in their schools and in their Journals. We feel that every effort should be made, not only by the State, but by the American Medical Association, to bring the standards of osteopathy up to our equal and become a part of our own profession. We are not jealous of osteopathy as it is today, or has been in the past. We welcome any one who has had adequate training—the same as our allopathic schools have. It is not the member with which we are dealing, but it is the quality of knowledge and skill of practitioners that we are concerned with.

This will be the final report of your Legislative Chairman and consultant Senator Peter A. Deisch. We are grateful for the opportunity that has been ours, to be of service to the society, to which we are dedicated. We are now bowing out of active service, with thanks and kind wishes for all of those who compose the membership of our society, which we believe embodies more of the virtues and but few of the faults of mankind.

## SUPPLEMENT TO REPORT OF THE COMMITTEE ON HOSPITALS

GUY SHRIGLEY, Chairman

The Committee also took under consideration the problem of the Department of Defense definition of hospitals as outlined under the Medicare Program.

It was the considered opinion and the recommendation of this Committee that all hospitals in

Arkansas that are licensed and approved by the Arkansas State Hospital Commission and acceptable to Blue Cross-Blue Shield and other insurance companies should be fully approved to give service under the Medicare Program, and that the House of Delegates should consider this action and forward such recommendation to the Department of Defense.

## SUPPLEMENTARY REPORT OF COMMITTEE ON INSURANCE

J. J. MONFORT, Chairman

### 1. Progress on claims forms.

Although the Committee has tentatively approved of the three basic and six supplementary forms designed by the AMA Council on Medical Services and the Health Insurance Council, we are still trying to get a shorter form approved by the Casualty Adjusters Association of Arkansas. They are now considering either approving the Oklahoma standard claim form or designing a similar shorter form.

### 2. The Committee unanimously approved, after thorough consideration, a resolution to have the Council request that the State Insurance Commissioner revoke the license to do business in Arkansas of the Physician's National Life Insurance Company of Birmingham, Alabama. This action followed the accompanying evidence presented by the North Arkansas Clinic of Batesville, Arkansas, setting forth allegation of unethical conduct on the part of the company's salesmen, and the inability of the Company to control the actions of their salesmen.

## REPORT OF CONSTITUTIONAL REVISIONS COMMITTEE

J. J. MONFORT, Chairman

The Committee submits the following proposed changes in the By-Laws:

CHAPTER VIII—Section 1, 8, c (line 3) to add the words "and not more than twelve" after the word "each," so that it shall read:

"The committees shall consist of not less than six members each, and not more than twelve, with each president appointing one-third of the members of each committee for a three-year period," and adding: "Provided that sub-committees shall consist of three or six members, with each president appointing one-third of the membership."

## SUPPLEMENTAL REPORT OF COMMITTEE ON MEDICAL EDUCATION

H. W. THOMAS, Chairman

The Committee on Medical Education met again following submission of the previous report. This meeting was held in the office of the Provost for medical affairs at the Medical Center and was devoted to discussion of plans for changes in the preceptorship program during the coming year.

It was recommended that this program be increased to six weeks and that more General Prac-

titioners over the state be encouraged to participate. Plans are now being formulated to put this program into effect.

## REPORT OF THE RURAL HEALTH CONFERENCE

BEN N. SALTZMAN, Chairman

The Sixth Arkansas Rural Health Conference was held March 20, 21, 1957, at the University of Arkansas Medical Center. The conference was sponsored by the Arkansas Medical Society Committee on Rural Health, and co-sponsored by the Agricultural Extension Service, the Arkansas Council of Home Demonstration Clubs, the Arkansas Farm Bureau Federation, the Arkansas State Dental Association, the Arkansas State Board of Health and the Woman's Auxiliary to the Arkansas Medical Society.

The conference was opened by your chairman; and our President, Dr. Fount Richardson, delivered the welcome address. Many Arkansas physicians participated in the talks in this program. The costs of medical and hospital services were first discussed. Dr. F. A. Buchanan of Little Rock, spoke of physician's costs in urban areas. Dr. Randolph Ellis of Malvern spoke of these costs in rural areas. Mr. Robert McCuiston, Business Manager of St. Mary's Hospital, Dermott, spoke on hospital and nursing costs. Dr. R. B. Robins of Camden, discussed pharmaceuticals and their costs, before antibiotics and since. Dr. W. R. Alstadt, President-elect of the American Dental Association, of Little Rock, spoke of the cost of dental care. The available health services in Arkansas were discussed the first afternoon. Mr. Eugene C. Spratt, Director of Division of Hospitals, Arkansas State Board of Health, in Little Rock, described the hospitals and clinics situation in Arkansas. Mr. Paul Schaefer, Executive Secretary of the Arkansas Medical Society, Fort Smith, spoke concerning physician placement in Arkansas. Miss Julia Miller, Dean of the School of Nursing of the University of Arkansas, discussed nurses and other personnel. Mr. Carl Munson of the Agricultural Extension Service of Little Rock was discussion leader for the conference.

Dr. F. Douglas Lawrason, Provost for the Medical Center, Miss Julia Miller and Dean Stanley Mittelstaedt, Dean of the School of Pharmacy, discussed the University Medical Center. Dr. Joe Norton of Little Rock, led the singing for the conference.

The next day the problems of rural medicine were brought to the attention of the conference participants. Mrs. G. D. Priest of Waldron, Arkansas, and Mrs. William Wilkie, of Widener, Arkansas, presented to the audience what communities expect in the way of medical services. Dr. Joe Verser of Harrisburg, told the conference what are the communities' responsibility for medical care and services. Dr. Duane E. Brothers of Ozark, Arkansas, talked about community appeal to attract a physician and his family. Mr. Aubrey Gates, Executive Director of the Council on Rural Health of the American Medical Association, summarized the meeting.



The members of the Committee on Rural Health of the Arkansas Medical Society are Duane E. Brothers, Ozark; Willard H. Pruitt, Camden; A. H. Maddox, Paragould; William A. Snodgrass, Jr., Little Rock; John T. Herron, Little Rock, and Ben N. Saltzman, Mountain Home, Chairman. As in our past conferences, the success of the meeting depended almost entirely upon the cooperation of the various groups represented. For the past many years, the cooperation of the advisory committee and the Rural Health Committee has been a wonderful thing to see. It has proved to the people of Arkansas that physicians can work with others for the betterment of their communities and their state.

We of the committee feel that our conference was successful in that it encompassed most of the problems that concern the practice of medicine in the state. The attendance, while lower than in the past, was more representative. Total attendance was 262.

There were 35 physicians present. Broken up into representative groups, the attendance was as follows: Medical Society: 26; Medical Society Auxiliary: 35; Dental Society: 5; Farm Bureau: 13; Home Demonstrations Clubs: 44; Extension Service: 33; Public Health: 62; Hospitals: 3; AMA: 1; Nurses Association: 1; P.T.A.: 2; Department of Education: 2; Garden Clubs: 1; State Hospital: 3; Kiwanis: 1; Medical Center: 2; Cancer Commission: 1; Lions Club: 1; Radio, Press and TV: 2; Rotary: 2; Other: 22.

Blue Cross and Blue Shield provided us with excellent publicity for this conference. I believe that it was the best covered medical program the medical society has had in a long time. It is true that we do not like adverse publicity, but public relations can only be furthered with the type of publicity that was provided for the 6th Arkansas Rural Health Conference. Dr. William Snodgrass did an outstanding job as program chairman.

The members of the Committee on Rural Health make only one request of the Medical Society. Please attend our Rural Health Conferences.

## RESOLUTIONS

### Dr. Joe Shuffield and Mr. Peter Deisch

We, the House of Delegates of the Arkansas Medical Society, wish to commend the untiring and unselfish work over the years of our beloved legal advisor, Honorable Peter Deisch, and our loyal colleague, Dr. Joe Shuffield. Both have gone far beyond the call of duty in smoothing out the obstacles that have been constantly confronting the medical profession of Arkansas and it is largely due to their efforts that a medical practice act has been enacted—which has been proclaimed as a model to be copied by other states of our Union.

We wish to further recognize their zest and tact in helping steer the successful efforts in the building of our great Medical Center, the dedication of which today brings a thrill of joy to every physician and friend of medicine and medical education in Arkansas.

### Dr. Katharine Dodd

Be it hereby resolved that the Arkansas Medical Society being mindful of the fact that Dr. Katharine Dodd has reached compulsory retirement age for state employees urges her to remain in Arkansas following said retirement. We are also mindful of the great need for teachers in the medical field and urge Dr. Dodd, a teacher of international reputation, to continue her work at the medical school in whatever capacity she desires. We feel it would be a great loss both to the school and the entire profession should she leave Arkansas.

We further resolve that a copy of this resolution be sent to Dr. Dodd urging her to stay in Arkansas and a copy be sent to the Provost of the Medical School so that he will know of our desires.

## Appreciation

The Press and other media of communication have been generous in their treatment of our activities this our 81st Annual Session.

The management of the Marion Hotel has facilitated our efforts in every way, as have those in charge of the Robinson Auditorium, where most of our sessions have been held.

The Pulaski County Society, and the individual members thereof, and particularly the ladies' committees, have been gracious hosts, and have contributed greatly to our enjoyment.

Distinguished guests from beyond our borders, who have appeared on our program, have added very greatly to the worth of our meeting, and we have benefited from the lessons which they have shared with us.

The hours of thought devoted by the Committee on arrangements for the Annual Session, have been greatly rewarding, and have borne fruit in a program of outstanding worth.

Dr. Lawrason of the Medical Center, and its faculty, have cooperated fully with us in integrating the dedication of the Center, and placing its facilities at our disposal in order that we might observe its place in the medical life of the State.

Study and other effort was given by our technical exhibitors, resulting in exhibits that have been instructive, and they were greatly enjoyed.

Of great benefit to our gathering were the commercial exhibitors. The courteous and careful attention of the attendants was quite helpful. THEREFORE,

BE IT RESOLVED that the Arkansas Medical Society records its sincere appreciation, and expresses its heartfelt thanks to our host city, and those heretofore mentioned, for the cordial welcome, the extension of unbounded hospitality, the expression of good will and kindly feelings shown each member of the Society, who have been privileged to attend this session. We shall ever hold in pleasant memory the hours spent as their guests during the last several days.

## Enforcement of Stock Laws

WHEREAS, the deplorable and tragic highway accident which recently caused the death of a beloved member of our Society, in the years of his

## PROCEEDINGS

greatest usefulness, points up the need for efforts to greater safety on our highways.

Dr. Robert Hyatt, of Monticello, was a passenger in an automobile which struck a hog which was straying on the highway, causing the vehicle to be overturned and all the occupants to be thrown into a body of water, where Dr. Hyatt was drowned. THEREFORE,

BE IT RESOLVED by the House of Delegates of the Arkansas Medical Society that the various peace officers of our State, and our highway patrol are called upon and urgently requested to use their best efforts to see that our State laws with reference to stray stock are vigorously enforced.

### **Liaison With the University of Arkansas School of Medicine**

WHEREAS, the University of Arkansas Medical School calls upon the cooperation of the State Medical Society and the various county Medical

Societies of the State of Arkansas frequently at times of decision; and

WHEREAS, the State Medical Society and the County Medical Societies as a whole are not completely informed of the matters pertaining to the University of Arkansas Medical School;

NOW, THEREFORE, be it resolved by the Garland County Medical Society that a representative and alternate representative be selected by each county medical society of the State of Arkansas to meet with the approved officials of the University of Arkansas Medical School at regular intervals, the dates and time of said meetings to be arranged to the mutual satisfaction and convenience of all parties concerned, in order to discuss pertinent matters and in order that this information may be placed at the disposal of the State and County Medical Societies.

This resolution adopted and approved this month of April, 1957, by the Garland County Arkansas Medical Society.





for  
the first  
time

24 HOUR SULFA THERAPY



A single dose of KYNEX provides therapeutic blood levels within the hour. Blood concentration peaks are reached within 2 hours - 10 mg. per cent blood levels persist beyond 24 hours.<sup>1</sup>

**For greater safety:** low dosage, high solubility and slow excretion help avoid crystalluria  
**For broad antibacterial effectiveness:** KYNEX is particularly efficient in urinary tract infections due to sulfonamide-sensitive organisms, including *E. coli*, *Aerobacter aerogenes*, paracolon bacilli, streptococci, staphylococci, Gram-negative rods, diphtheroids and Gram-



WITH A SINGLE (1 Gm.) DOSE

positive cocci. **For convenience:** the low dosage of 1 Gm. (2 tablets) per day offers optimum convenience and acceptance to patients.

**Tablets:** Each tablet contains 0.5 Gm. ( $7\frac{1}{2}$  grains) of sulfamethoxypyridazine. Bottles of 24 and 100 Tablets.

**Syrup:** Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

1. Boger, W. P.; Strickland, C. S.; and Gylfe, J. M.: Antibiot. Med. & Clin. Ther. 3:378 (Nov.) 1956.

  
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\*Reg. U.S. Pat. Off.

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PROCEEDINGS

*33rd Annual Session*  
Woman's Auxiliary  
to the  
Arkansas Medical Society  
Hotel Marion, Little Rock  
April 23rd, 24th and 25th, 1957



**MRS. J. W. KENNEDY**

Arkadelphia

President, Woman's Auxiliary to the  
Arkansas Medical Society, 1957-58



# PROCEEDINGS

The Woman's Auxiliary to the Arkansas Medical Society held its 33rd Annual meeting in connection with the annual meeting of the Arkansas Medical Society, April 23, 24, 25, 1957, in Little Rock.

Regular open sessions of the House of Delegates were held in the Hotel Marion, with Mrs. Lycurgus Gardner, State President, presiding. Delegates were formally seated at sessions. Reports of all committees and County Presidents were heard.

Two luncheon meetings were held. Featured speakers were the honor guests of the Convention, Mrs. Robert Flanders, President of the Auxiliary to the American Medical Association, and Mrs. Oscar Robinson, President of the Auxiliary to the Southern Medical Association.

Members attended the dedication ceremony of the University of Arkansas Medical Center.

New officers for the year 1957-58 are:  
 President.....Mrs. J. W. Kennedy, Arkadelphia  
 President-Elect Mrs. Gordon P. Oates, Little Rock  
 1st Vice Pres.....Mrs. A. J. Forestiere, Harrisburg  
 2nd Vice Pres.....Mrs. Howard Rands, Dumas  
 3rd Vice Pres.....Mrs. John W. Jones, Texarkana  
 4th Vice Pres.....Mrs. A. R. Hammon, Harrison  
 Recording Sec'y.....Mrs. A. S. Koenig, Fort Smith  
 Publicity Sec'y.....Mrs. L. A. Whittaker, Fort Smith  
 Corresponding Sec'y.....Mrs. Joe Reid, Arkadelphia  
 Treasurer.....Mrs. Mason Lawson, Little Rock  
 Historian.....Mrs. C. W. Garrison, Little Rock  
 Parliamentarian.....Mrs. Paul Gray, Batesville

Mrs. Erner Jones,  
 Recording Secretary.

## COMMITTEES OF THE ARKANSAS MEDICAL SOCIETY

	Term Expires April
<b>COMMITTEE ON CANCER CONTROL</b>	
Jean Gladden, Harrison, Chairman.....	1958
Edward M. Cooper, Jonesboro.....	1960
Edwin F. Gray, Little Rock.....	1959
W. H. Handley, Jr., El Dorado.....	1959
William B. Harrell, Texarkana.....	1960
Fred Krock, Fort Smith.....	1960
Jack Kennedy, Arkadelphia.....	1958
<b>COMMITTEE ON MEDICAL LEGISLATION</b>	
Alan G. Cazort, Little Rock, Chairman.....	1960
H. Elvin Shuffield, Little Rock, Co-Ch'm.....	1960
R. B. Robins, Camden.....	1958
K. W. Cosgrove, Little Rock.....	1958

Term  
Expires  
April

G. W. S. Ish, Sr., Little Rock.....	1958
J. Arnold Henry, Russellville.....	1958
Elmer L. Davis, Texarkana.....	1960
L. H. McDaniel, Tyronza.....	1960
G. D. Murphy, Jr., El Dorado.....	1958
Fount Richardson, Fayetteville.....	1959
W. R. Brooksher, Fort Smith.....	1959
T. S. Van Duyn, Stuttgart.....	1959
H. King Wade, Sr., Hot Springs.....	1959
H. A. Causey, Pine Bluff.....	1959

## COMMITTEE ON PUBLIC HEALTH

(Also to Serve as Rural Health Committee)

Ben N. Saltzman, Mountain Home, Ch'm.....	1960
John T. Herron, Little Rock.....	1958
W. A. Snodgrass, Jr., Little Rock.....	1958
A. H. Maddox, Paragould.....	1959
Lawrence E. Drewery, Camden.....	1960
Duane E. Brothers, Ozark.....	1959

### Sub-Committee on Maternal and Child Welfare

Frances Rothert, Little Rock, Ch'm.....	1958
Joseph L. Rosenzweig, Hot Springs.....	1960
E. H. Crawley, Little Rock.....	1959

### Sub-Committee on Industrial Health

Roy I. Millard, Russellville, Chairman.....	1960
Samuel B. Thompson, Little Rock.....	1958
Frank Padberg, Little Rock.....	1958
Thomas P. Foltz, Fort Smith.....	1960
Charles A. Taylor, Batesville.....	1959
Noble Daniel, Texarkana.....	1959
A. D. Cathey, El Dorado.....	1959

### Sub-Committee on Tuberculosis

Harley C. Darnall, Fort Smith, Ch'm.....	1960
Harvey Shipp, Little Rock.....	1958
Fred Gray, Little Rock.....	1958
C. A. Henry, Fort Smith.....	1959
Hugh A. Browne, Alexander.....	1960
Preston Loyce Hathcock, Fayetteville.....	1959

### Sub-Committee on Mental Health

Wm. P. Kolb, Little Rock, Chairman.....	1960
Byron A. Bennett, Little Rock.....	1958
William G. Reese, Little Rock.....	1959
Henry M. Sims, Fort Smith.....	1959
Granville L. Jones, Little Rock.....	1960

### Sub-Committee on Liaison with the State Board of Health

John T. Herron, Little Rock, Chairman.....	1958
W. J. Rhinehart, Little Rock.....	1960
Ruth Ellis Lesh, Fayetteville.....	1959

### Polio Advisory Sub-Committee

Eugene H. Crawley, Little Rock, Ch'm.....	1960
Katharine Dodd, Little Rock.....	1958



# PROCEEDINGS

	Term Expires April		Term Expires April
John Hundley, Little Rock.....	1958	Hugh R. Edwards, Searcy.....	Permanent
James T. Rhyne, Pine Bluff.....	1959	Woodbridge Morris, Little Rock ..	Permanent
W. H. Pruitt, Camden.....	1960		
<b>COMMITTEE ON MEDICAL EDUCATION</b>		<b>Advisory Committee to the Arkansas State Medical Assistants Society</b>	
<b>Sub-Committee on Postgraduate Education</b>		C. Lewis Hyatt, Monticello, Chairman ..	1959
Willis E. Brown, Little Rock, Ch'm.....	1958	M. D. McClain, Little Rock.....	1958
J. W. Kennedy, Arkadelphia.....	1960	T. S. Van Duyn, Stuttgart.....	1960
Paul Sizemore, Magnolia .....	1959		
<b>Committee on the American Medical Education Foundation</b>		<b>Senior Medical Day Committee</b>	
W. R. Brooksher, Fort Smith, Ch'm.....	1960	W. R. Brooksher, Fort Smith,	
J. H. McCurry, Cash.....	1959	Chairman .....	Permanent
Raymond Cook, Little Rock .....	1959	Calvin R. Simmons, Pine Bluff.....	Permanent
		Wayne P. Jones, Berryville.....	Permanent
<b>COMMITTEE ON HOSPITALS</b>		<b>COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS</b>	
Guy Shrigley, Clarksville, Chairman .....	1959	John M. Hundley, Little Rock, Chairman	1960
Julius H. Hellums, Dumas.....	1958	Gordon P. Oates, Little Rock .....	1958
C. C. Long, Ozark.....	1958	Friedman Sisco, Springdale .....	1959
Martin C. Hawkins, Jr., Searcy.....	1960		
J. Max Roy, Forrest City.....	1960	<b>COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION</b>	
S. Wright Hawkins, Fort Smith .....	1959	C. R. Ellis, Malvern, Chairman.....	1958
<b>Sub-Committee on Liaison with Blue Cross-Blue Shield</b>		John Olson, Fort Smith.....	1958
Sam Jameson, El Dorado, Chairman.....	1960	John P. Wood, Mena.....	1958
Ellery C. Gay, Little Rock .....	1958	Wm. B. Harrell, Texarkana.....	1958
R. C. Dickinson, Horatio.....	1958	Wm. L. Steele, Little Rock.....	1959
Gerald Teasley, Texarkana .....	1959	M. J. Kilbury, Jr., Little Rock.....	1959
Charles W. Reid, Pine Bluff.....	1960	Julian L. Foster, Little Rock.....	1960
Ulys Jackson, Harrison .....	1959	Richard V. Ebert, Little Rock.....	1960
		James W. Leatherman, Hot Springs.....	1960
<b>COMMITTEE ON PUBLIC RELATIONS</b>		<b>COMMITTEE ON INSURANCE</b>	
Joseph A. Norton, Little Rock, Chairman	1960	J. J. Monfort, Batesville, Chairman.....	1958
Thomas G. Johnston, Little Rock,		W. J. Butt, Fayetteville .....	1958
Vice Chairman .....	1960	Sam Jameson, El Dorado.....	1959
R. B. Robins, Camden.....	1958	H. E. Mobley, Morrilton.....	1959
L. A. Whittaker, Fort Smith .....	1958	Daniel H. Autry, Little Rock.....	1960
J. B. Wharton, Jr., El Dorado.....	1958	Samuel B. Thompson, Little Rock .....	1960
Gilbert D. Jay, III, West Memphis.....	1958		
C. Lewis Hyatt, Monticello.....	1960	<b>PROFESSIONAL RELATIONS COMMITTEE</b>	
John W. Dorman, Springdale.....	1959	O. J. T. Johnston, Batesville,	
M. C. John, Jr., Stuttgart.....	1959	Chairman .....	Permanent
<b>Sub-Committee on State Health and Medical Resources for Civil Defense</b>		R. C. Shanlever, Jonesboro.....	Permanent
Joseph Buchman, Little Rock, Ch'm.....	1958	M. C. John, Jr., Stuttgart.....	Permanent
M. J. Kilbury, Jr., Little Rock.....	1960	H. T. Smith, McGehee.....	Permanent
L. E. Drewery, Camden .....	1959	Joe F. Rushton, Magnolia.....	Permanent
<b>Sub-Committee on Liaison with the Nursing Profession</b>		R. R. Kirkpatrick, Texarkana .....	Permanent
Hoyt Choate, Little Rock, Ch'm.....	Permanent	J. W. Kennedy, Arkadelphia.....	Permanent
		Henry Hollenberg, Little Rock.....	Permanent
		Ross Fowler, Harrison .....	Permanent
		Art B. Martin, Fort Smith .....	Permanent

# Editorial

## Will Private Practice Cease To Exist?

R. B. ROBINS, M.D.

Guest Editorial

Think of the peculiar changes which which happened in the private practice of medicine. We are observing the terrific trend for industry, labor, government, insurance companies, hospitals and related groups to control all health activities. Does this mean that private practice will cease to exist? I ask the question, because I think we have something here to think about. Yes, there is imminent danger of the private practice of medicine losing its status as a professional art and being forced into the mold of a trade.

Various industries over this country are building hospitals and organizing medical service plans for employees and dependents which are staffed by salaried and closed panel physicians.

Labor also is establishing hospitals and complete medical service plans, staffed by salaried and closed panel physicians to care for their members and their dependents. Dr. Edwin F. Bailey, Vice-President of the Health Insurance Plan of Greater New York (HIP) has predicted that organized labor will soon establish the pattern of medical care in the United States.

As all of you know the Veteran's Administration is providing hospital care and medical service for an ever-increasing number of non-service connected disabilities. It is possible that in the not too far distant future dependents of veterans will be included.

Take a look at Social Security and its medical provisions. Most physicians do not realize what is happening to them in the Social Security legislation. The disability program in any form means to me the ultimate nationalization of medicine and the end of private health and accident insurance. These changes will

not take place over night, to be sure, but they will gradually take place as each new Congress that meets will be urged to broaden more and more the coverage. When physicians are brought under Government control for a permanent and total disability program, even if only for medical certification, the next moves will urge more for cash benefits for temporary illness, followed by medical care for short-term sickness. And there you go with the final step as national compulsory federal health insurance.

Attention should be given to the Hill-Burton money and some of our experiences in Arkansas with it. We have accepted federal money in Arkansas — Hill-Burton money — for one time grants for bricks and mortar to build hospitals. What has happened recently? In three instances now certain doctors were denied staff memberships for good reasons it was thought in three different hospitals. These doctors have gone to court, have won their cases and forced themselves on to the hospital staffs. I ask you to remember the statement of Supreme Court Justice Robert H. Jackson in 1942 "It is hardly lack of due process for the Government to regulate that which it subsidizes." The cases I am referring to have been carried to their limit in court I might tell you. The Supreme Court indicates that a hospital built with a portion of tax funds is subject to different legal principles than a private hospital; that in such a hospital a doctor as a citizen if he has a legal license to practice medicine cannot be denied the use of the particular hospital and that the staff rules and regulations of such a hospital are subject to court supervision. This is what you are confronted with when you accept public funds—tax money—for bricks and mortar.

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\*Camden, Ark.



## Medicine in the News

### AHA Plan for U. S. Employee Health Insurance Introduced.

Introduced by Rep. Chet Holifield (D., Calif.), the American Hospital Association's bill for health insurance for federal employees now is before the House Post Office and Civil Service Committee. It is H. R. 7034.

The bill would offer U. S. civilian employees both basic and major medical coverage, with U. S. paying part of the cost. Payroll deductions, which so far have not been approved by the White House, are provided. About 2,000,000 employees and an equal number of their dependents would be affected. Major provisions of the bill.

1. The Civil Service Commission would negotiate two types of basic contracts for nationwide use, one offering service benefits for doctors' in-hospital charges and hospitalization and the other offering indemnity benefits. In the indemnity contract, hospital payments would have to be sufficient to meet the cost of hospital care.

2. Employees would have a choice of service or indemnity basic coverage, or federal employee association or group practice arrangements.

3. Major medical or catastrophic coverage would be available.

4. The U. S. would match employee payments up to a maximum of \$2.17 for employee only and \$5.42 for employee and family.

### A Health Education Show.

The "Cavalcade of Health," a health education show sponsored by the Oklahoma State Medical Association, will play a vital role in Oklahoma's celebration of its 50th anniversary. Between June 14 and July 7, nearly two million people are expected to pour through the Oklahoma City Fairgrounds to see outstanding exhibits in such fields as medicine, electronics, nuclear science, and automation. Twenty foreign nations will be represented. In keeping with the over-all theme

of the exposition, "Arrows to Atoms," the medical profession will graphically illustrate the advances made in all fields of medical endeavor.

### Joint Atomic Energy Committee Planning Radiation Study.

Problems of radioactive fallout from nuclear weapon explosions, including their medical implications, are going to be aired by a special subcommittee of the Joint Committee on Atomic Energy. Hearings begin May 27 and run through June 7. Chairman will be Rep. Chet Holifield (D., Calif.), who conducted extensive hearings for the House Government Operations Committee in 1956 on civil defense.

### Democrats Offer Bill For U. S. Aid to Medical Schools.

A bill (S. 1922) for federal aid to medical, dental and osteopathy schools for construction and equipment has been introduced by Democratic Senators Hill, Neely, Humphrey and Smathers. It differs in several respects from the administration bill (described in LETTER 85-15). Here are some comparisons:

1. The administration bill would amend the present three-year \$30 million a year program for research construction grants by increasing it to a total of \$225 million to be used over the next four years, and for grants to help build teaching as well as research facilities. The Democrats would leave intact the present research grants program of \$30 million a year for three years, and in addition would provide \$60 million a year for five years for teaching facilities, or a total of \$390 million.

2. Under the administration bill, the U. S. contribution could not exceed 50% of the research or teaching project cost. The Democrats also call for 50-50 matching, except that the U. S. would increase its share to two-thirds under two conditions, (a) if the school gives assurances that its freshman class would be increased by 5%, and (b) in the case of new schools.

3. The administration bill would expand the present research advisory committee and make it responsible for screen-



ing teaching as well as research construction projects, whereas the Democrats would set up a new 12-man committee, with half its members from the medical or dental professions.

### **Second Film of "Medicine and the Law" Series.**

The second film in the American Medical Association's "Medicine and the Law" series will be available for medical society showings beginning July 1. Titled "The Doctor Defendant," the 34-minute motion picture deals with prevention of professional liability action.

The new film-presented in cooperation with the American Bar Association—dramatically presents four case reports of situations which resulted in claims against physicians. In reviewing these alleged professional liability cases, it also demonstrates how a county medical society's review committee functions.

"The Doctor Defendant," a companion film to "The Medical Witness" in the series produced by the William S. Merrell Company, will be premiered at the A. M. A. annual meeting in New York City June 5.

Medical societies are urged to arrange advance booking dates now for "The Doctor Defendant" for 1957 and 1958 showings. Requests should be sent to the A. M. A. Film Library.

**H. E. W. Appropriations**—The administration's fiscal 1958 appropriation (H. R. 6287) is still before a Senate Appropriations subcommittee, after getting through the House with fewer cuts than any federal agency budget thus far considered. The Senate group was asked by the administration to restore about 80% of the House reductions. Medical research grants were untouched.

**Doctor Draft**—Hearings on the bill, H. R. 6548, may begin the first week in May. The bill, before House Armed Services Committee, would allow the 6-year-old doctor draft to expire July 1 and amend the regular draft act to permit the selective call-up of physicians, dentists, and allied specialists under the latter law. The American Medical Association is due to testify.

**Barbiturates and Amphetamines**—Bills setting up controls over the manufacture, processing and distribution of these drugs (H. R. 503, 504, and 2498) are the subject of current hearings of a House Interstate health subcommittee. They started April 18 and resume in early May. The AMA is scheduled to provide an expert witness.

**Civil Air Surgeon**—A subcommittee of the Senate Interstate Committee has held hearings and still has pending a bill (S. 1045) for a surgeon general for civilian aviation. A similar proposal, H. R. 4275, is before the House Interstate Committee with no indication of hearing dates.

**Traffic Safety**—A House Interstate subcommittee has held extensive hearings on what needs to be done to cut down on highway accidents and fatalities. The AMA is expected to be heard some time following resumption of hearings April 30. No specific bill is before the group. In the Senate, the Labor and Public Welfare Committee has pending S. 1292, but no hearing plans.

**Civil Defense**—The administration bill (H. R. 4910) increasing the federal role in civil defense has been subject of two days of hearings by a House Armed Services subcommittee. Also, a House Government Operations subcommittee (Holifield) has held hearings on H. R. 2125 and 12 other civil defense bills for a Department of Civil Defense, but has taken no further action.

**Veterans Administration**—House Veterans Affairs committee has held hearings on admissions to VA hospitals, including H. R. 58 making statutory and tightening up admission procedures for non-service-connected cases, but has taken no action. Also pending is H. R. 6719, increasing pay scales for VA doctors, nurses.

**Medical School Grants**—Two versions of federal construction grants for medical schools are pending. A Democratic version is S. 1922 before Labor and Public Welfare; H. R. 6874, the administration bill, is before House Interstate.

**Disability Freeze**—The bill (H. R. 6191) extending another year beyond July 1 of this year the deadline for filing claims under the social security disability freeze law passed the House March 28 and is pending in Senate Finance Committee.

**Federal Workers Health Insurance**—Several versions of federal civilian workers health insurance are pending before House Civil Service Committee: H. R. 6687, 6718, 6832, 7034. Administration bill has not been unveiled.

### **Doctor Contributions to Medical Schools.**

The American Medical Education Foundation reports that physicians gave well over three million dollars to medical education in 1956.

The AMEF just released data giving a breakdown of physician contributions to medical education last year. For the first time, this also includes information on contributions made through alumni campaigns.

### **1,200 Doctors and Lawyers Attend Three Conferences.**

More than 1,200 doctors and lawyers attended the three regional 1957 medico-legal symposiums sponsored by the Committee on Medicolegal Problems and the Law Department of the A. M. A., last month in Atlanta, Denver, and Philadelphia. The sessions were held on three successive Fridays and Saturdays. They were so successful that similar sessions are already being planned for 1959 in the East, Midwest, and the West.

Dr. Herman A. Heise, Milwaukee, opened each symposium with a discussion of the chemical tests now being used for intoxication. In each of the cities, his talk was followed by a mock-trial demonstration in which a "drunken driver" was convicted from evidence obtained through a breath test.

The second day's session in each city featured a panel discussion on "Trauma and Cancer," followed by a lecture on "Medical Expert Testimony," and a final question-and-answer period.

### **AMA Washington Letter.**

Because of the Congressional Easter recess, the appropriations bill for the Department of Health, Education, and Welfare won't reach the Senate floor until May, at the earliest. Meanwhile, HEW officials are attempting to convince the Senators that they should restore some of the money cut by the House (page 2) . . . Surgeon General Burney reports that the incidence of poliomyelitis so far this year is "well below" that for 1956. From January 1 to April 15 only 528 cases had been reported to Public Health Service, compared with 1,067 for the same period last year. For other information on the poliomyelitis situation, see page 2. . . . Although no date has been set for hearings on the administration's aid-to-medical schools bill (see LETTER 85-15), Chairman Oren Harris of the key Interstate and Foreign Commerce Committee has introduced the bill in the House (H. R. 6874), and Chairman Hill of the Labor and Welfare Committee has promised to introduce it in the Senate, after he has checked up on some provisions. Senator Smith (R., N. J.) has joined Senator Hill in sponsoring a bill to control chemical additives to food (S. 1895), identical with the House bill (H. R. 6747) outlined in LETTER 85-15.

**New Legislation:** The chief objective of two bills, **H. R. 6412** by Rep. Flood (D., Pa.) and **H. R. 6514** by Rep. Santangelo (D., N. Y.) is to amend the social security act to permit covered persons to retire for disability at any age, rather than the present 50-year limit . . . Rep. Holland (D., Pa.) in **H. R. 6421** wants service connection to be presumed if mental disabilities occur at any time in the case of combat veterans of World War II and the Korean war; under present law the period is two years after separation from service for all veterans . . . Rep. Dorn (R., N. Y.) in **H. R. 6602** proposes a commission "to study the shortage of doctors of medicine in the United States." The 12-member commission would include physicians, be bi-partisan, and be composed half from the Congress and the government and half from private life. The commission would look into the number of medical graduates, medical school admission policies, the number of persons



unable to gain admission to medical schools, and the extent to which foreign physicians are active in their profession in the United States. Mr. Dorn is particularly interested in the last point.

### **NEW LEGISLATION . . . Liberalized Medical Deductions . . . Overseas Medical Care.**

Rep. Brooks (D., La.) proposes in H. R. 6076 to increase the maximum medical expense deduction for federal income tax purposes from \$2,500 to \$15,000 annually per dependent, and to permit the taxpayer a five-year carry-over in excess of this new liberalized maximum.

### **Year-Round Salk Poliomyelitis Vaccine Campaigns Planned.**

Organizations active nationally in Salk vaccine work will conduct year-round campaigns to interest the profession and the public in taking advantage of this protection against paralytic poliomyelitis. This decision was reached at a Washington meeting attended by representatives of the American Medical Association, the National Foundation for Infantile Paralysis, the Association of State and Territorial Health Officers and U. S. Public Health Service.

The group agreed to maintain the goal of vaccinations for all persons up to the age of at least 40, at the same time advising that where supplies are limited, emphasis should be given first to those under 20 and pregnant women.

### **Professional Liability is Subject of Second Film in New A.M.A. Series on Doctor-Lawyer Relations**

Chicago, Ill., April 20 — The second film in the A. M. A.-American Bar Association series on "Medicine and the Law" will deal with prevention of professional liability action, it was announced today by Dr. George F. Lull, secretary and general manager of the A. M. A. Titled "The Doctor Defendant", the film will be available from the A. M. A. Film Library for medical society or association showings, beginning July 1st.

### **Witnesses Disagree on New Aviation Medicine Legislation**

Witnesses appearing before the Senate Committee on Interstate and Foreign Commerce are split wide apart on a bill (S. 1045) that would give federal medical officials a great deal more authority over civilian airplane pilots and plane construction. The bill would:

1. Establish within the Civil Aeronautics Administration an Office of Civil Aviation Medicine headed by a civil air surgeon and including regional flight surgeons and a civil aeronautics medical research laboratory.
2. Authorize the civil air surgeon to set minimum standards of mental and physical fitness for civil airmen and minimum human requirements in aircraft design, and to provide (a) medical examinations for airmen and their medical certification, (b) inspection of aircraft and aircraft components and appliances to insure compliance with human requirements, and (c) inspections and appraisals of medical examiner facilities.

Officials of the Department of Commerce and the Civil Aeronautics Board oppose the bill, maintaining in general that the money could better be used to expand and improve existing medical examination procedures and research facilities. Also opposed, for various reasons, are the Airline Pilots' Association, the Air Transport Association, and the Airplane Owners' and Pilots' Association.

While suggesting some amendments and modifications, the following support the bill: Dr. Jan Tillisch of the Mayo Clinic, chairman of an AMA study committee now investigating the problem, who testified as an individual; Dr. William Ashe, chairman of the department of preventive medicine, Ohio State University; and Dr. Herbert F. Fenwick, president of the Civil Aviation Medical Examiners.

Medical representatives from the Air Force and Navy testified that there was need for expanded research in medical aspects of civilian aviation, but they neither supported nor opposed the bill.

### **HEW Budget Passes House, Goes to Senate with Few Cuts**

Winding up an unusually long debate that spanned more than a week, the



House on April 4 finally completed work on the fiscal 1958 budget for running the Departments of Health, Education, and Welfare and Labor, and sent the bill (H. R. 6287) to the Senate. More than half of the often heated debate was taken up with the Labor Department portion of the bill; a number of cuts were made in that agency's budget.

HEW came through the House votes almost unscathed after futile efforts to cut back the Hill-Burton hospital construction program by \$21 million, Indian health facilities by some \$3 million, and water pollution control construction grants by \$50 million. When the final results were all added up, it developed that the House had reversed itself on some 80 per cent of the cuts it had tentatively voted prior to roll call votes. The \$190 million for medical research through National Institutes of Health was never touched. The House denied the HEW Secretary only \$200,000 for the President's Committee on Education Beyond the High School and \$100,000 for salaries in the Bureau of Public Assistance. The House also sustained its Appropriations Committee in a \$5 million cut in money for general public health grants to states, which will have to be provided later if the cut is approved by the Senate and the committee's estimate of the obligation proves too low. The committee's \$6 million cut in Indian health funds also stood up in the House.

### **Hill-Burton Money in Arkansas Hospitals**

The federal government has put \$20,323,675 of Hill-Burton Act money into Arkansas hospitals in the last 10 years, Dr. J. T. Herron, state health officer, recently told the state Hospital Advisory Council. A total of \$41,987,775, including local money, has gone into hospital expansion and building since the Hill-Burton program started in 1947 and the state has gained 3,014 hospital beds.

### **Contracts for Construction Signed**

Signing of contracts for construction of the Dallas County Hospital and Health Center at Fordyce and Clinics at Sparkman and Carthage were made recently. This was the final step toward the reali-

zation of one of the most modern health plans in Arkansas.

**A.M.A. SURVEY ON DOCTOR'S HELP.** The doctor's secretary can save him a tremendous amount of time by performing many of the semi-technical and most of the business activities in the office—if she's well-trained and possesses certain important personal qualities.

That's what a nationwide survey, in which the A.M.A. cooperated, revealed recently. Harold Mickelson of the Division of Business Education, Northeast Missouri State Teachers College, completed the study.

To find out the ideal knowledges, skills, and personal qualities of medical secretaries, Mickelson sent mail questionnaires to over 500 top-notch women selected by medical societies and he interviewed a number of educators and physicians personally. A summary of his findings, entitled "The Medical Secretary: Her Duties, Training, and Role on the Medical Team" has just been published by the A.M.A.'s public relations department and is now being sent to state and county medical societies, business educators, and medical assistants' groups.

Mickelson analyzed the activities performed in physicians' offices, classifying them into three categories: (1) highly technical medical activities which, under normal conditions, only a physician can perform; (2) semi-technical medical activities which may be performed satisfactorily by medical office personnel under the supervision of the physician, and (3) business office activities of a routine or management nature which are ideally performed by the secretary or aide.

Semi-technical activities are those related to the examination or treatment of patients, including such duties as preparing and draping patients, weighing, taking temperatures and blood pressures, assisting with minor office surgery or treatment procedures, giving certain types of injections, sterilizing instruments, and conducting some laboratory tests, such as urinalysis and simple blood tests.

His survey points out that "physicians are not making maximum use of their extensive training when they unnecessarily perform semi-technical medical and busi-

ness activities." To help doctors determine what responsibilities can be delegated properly to office personnel, Mickelson is currently preparing a system for assigning duties which will be furnished to medical societies by the A.M.A. within the next few months.

### **Varicose Leg Ulcers Treated With Human Placenta**

CHICAGO — A new rapid method for treating varicose vein ulcers by using human placenta was described today by an Ohio physician.

Dr. Fred R. Denkwalter, department of surgery, Ohio State University College of Medicine, Columbus, said the treatment is similar to one devised for war wounds by a French army doctor.

He said in the American Medical Association's current (March) Archives of Surgery that the method does not give a "permanent cure" to the problem of chronic leg ulcers. However, it does reduce the time and expense necessary for relieving the condition, while giving the patient complete freedom of movement. The time necessary for healing of the ulcers is a matter of weeks instead of months as with older methods.

### **"Strokes"**

The launching of the first, nationwide cooperative research attack against cerebral vascular disease was announced today by Surgeon General Leroy E. Burney of the Public Health Service.

This disease, commonly known as "stroke," is the Nation's third-ranking killer.

The new cerebral vascular research program was made possible by Institute grants totaling \$172,000 to the various participating organizations. It is stated that the research results are expected to shed new light on the nature and causes of strokes and to open the way to more effective treatment methods. Relatively few data are now available on the effectiveness of the various methods currently in use.

### **New Legislation**

Traffic Safety . . . Senator Johnson (D., Texas) proposes in S. 1292 that there

be established within the Department of Health, Education, and Welfare a separate division to cooperate with other public and private agencies to reduce traffic accidents. The division would be headed by a commissioner appointed by the President, subject to Senate confirmation. It would collect information on causes of auto accidents and possible preventatives (including the design of autos and highways), evaluate and disseminate information to promote highway safety, and establish programs to promote highway safety, in cooperation with other government agencies and the industries involved. In 1955 the AMA House of Delegates urged the President to request legislation "authorizing the appointment of a national body to approve and regulate safety standards of automobile construction."

### **VA Approves Changes in 'Intermediary' Home-Town System**

It is neither the desire nor the intention of Veterans Administration to eliminate the "intermediary" system for administering the home-town care program, an arrangement in which a third party (a state medical agency) receives billings and makes payments. This was the gist of a statement by VA's chief medical director, Dr. William S. Middleton, at a Washington meeting attended by representatives of eight states and Hawaii, where the "intermediary" system remains in effect.

### **Dr. Allman to Assume AMA Presidency in June**

The American Medical Association's presidential oath of office will be administered to David B. Allman, M. D. of Atlantic City, N. J., in impressive ceremonies at 8:30 p.m., Tuesday, June 4, in the grand ballroom of the Waldorf-Astoria Hotel, New York.

### **Budget Bureau Testifies on Veterans' Medical Problems**

Because Veterans Administration hospital facilities now are adequate to take care of all service-connected cases, the Bureau of the Budget does not believe new hospitals should be constructed when they



would be solely for non-service connected cases. This was one of the views expressed to the House Veterans Affairs Committee by Robert E. Merriam, assistant budget director. He was accompanied by Fred McNamara, deputy chief of the bureau's labor and welfare division.

Under present law, Mr. Merriam pointed out, non-service connected cases may be hospitalized when beds are available, and he believes an act of Congress would be required to change the policy. He said VA expects the number of service-connected cases will remain at about 40,000, but that non-service cases make up two-thirds of the total receiving VA care. In his opinion, there are three possible solutions to the problem—VA to take care of all non-service cases, or (2) deny care to all such cases, or (3) set up a program somewhere between the two extremes. He said he hoped Congress would set a bed ceiling for VA, the present ceiling is 125,000, but it was set by the administration, not Congress.

#### **AMA Washington Letter 85-13**

**The Week in Washington:** The Administration bill to stimulate expansion of health insurance has been sent to Capitol Hill. It would waive anti-monopoly laws to permit small commercial insurance companies to pool funds to underwrite experimental health insurance projects . . . Each Congress, House members sponsoring health bills are invited to explain their ideas to the House Interstate and Foreign Commerce Committee; some testified yesterday, others will be heard today . . . The Budget Bureau joins with the VA in emphasizing to Congress that any new veterans' hospitals to be built at this time would be solely for the benefit of non-service connected cases . . . The House already has passed and sent to the Senate the bill to extend the deadline for filing applications under the "disability freeze."

#### **Folsom Asks Senate Committee To Restore HEW Appropriations**

**PHS Assistance to States—**Restore \$4.5 million out of \$5 million for special project grants and health grants for the aging and chronically ill.

**Indian Health Activities—**Restore \$3.9 million for increased hospitalization and health services, but Mr. Folsom did not ask restoration of another \$6 million for construction of Indian hospitals that had been cut by the House.

**Public Welfare Training—**Restore \$4.6 million for training welfare personnel.

**Hill-Burton Special Funds—**Allow H.E.W. to spend \$9 million for clinics and facilities for chronically ill. The House shifted these funds to the regular Hill-Burton hospital program.

**NIH 'Indirect Costs'—**Eliminate a House prohibition against additional payment in excess of 15 per cent of grants to help institutions meet indirect or "overhead" cost of the research projects.

**Disability Liberalization—**Senator Revercomb (R., W. Va.) wants to liberalize broadly the eligibility requirements for payment of social security to disabled workers at age 50. In introducing two bills on the subject, he stated that a person "must be all but dead to qualify for disability benefits under Public Law 880. . ."

**Chiropractors in Compensation Cases—**Senator Cooper (R., Ky.) proposes in S. 1650 that the use of chiropractic practitioners be authorized for injured U. S. employees under the Federal Employees Compensation Act. Presently they are cared for in Public Health Service hospitals, if the hospital conveniently located. Otherwise care is given by approved private physicians and in private hospitals, at government expense. This bill would make chiropractic practitioners and hospitals eligible to care for such cases.

**Federal Workers' Health Insurance—**Another version of federal workers health insurance is Rep. Lesinski's H.R. 6718. Patterned along the lines of a bill proposed by the International Association of Machinists, it provides both basic and major medical coverage for civilian employees of the federal government and their dependents. The government would pay one half the premium for basic and the full cost of major coverage, or an



amount equal to \$1.50 bi-weekly for any employee or \$4 bi-weekly if coverage includes dependents, whichever is the lesser. Workers would have a choice of plans.

#### **Administration Offers Its Aid-to-Medical-Schools Bill**

Secretary Folsom yesterday (April 11) presented to Congress the 1957 version of the Administration's bill for grants to medical, dental, osteopathy and public health schools to assist in building and equipping teaching facilities. Last year the Administration had recommended \$50 million a year in such grants for five-years—grants to assist in providing teaching space and equipment. Instead Congress authorized \$30 million a year for three years for grants to institutions, but with the money restricted to medical research facilities and equipment.

## *Announcements*

#### **Assembly of Otolaryngology**

The Department of Otolaryngology, University of Illinois College of Medicine, announces its Annual Assembly in Otolaryngology from September 30 through October 6, 1957. The Assembly will consist of an intensive series of lectures and panels concerning advancements in otolaryngology, and evening sessions devoted to surgical anatomy of the head and neck and histopathology of the ear, nose and throat.

Interested physicians should write direct to the Department of Otolaryngology, 1853 West Polk Street, Chicago 12, Illinois.

#### **American Board of Obstetrics And Gynecology**

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, for the 1958 Part I Examinations are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is September 1, 1957. No applications can be accepted after that date.

Current Bulletins outlining present requirements may be obtained by writing to the Secretary's office.

Robert L. Faulkner, M.D.  
American Board of Obstetrics  
and Gynecology  
2105 Adelbert Road  
Cleveland 6, Ohio

#### **ROCKY MOUNTAIN CANCER CONFERENCE**

Denver, July 10, 11, 1957

#### **Symposium on Diarrhea**

The University of Mississippi School of Medicine and the Mississippi Academy of General Practice are co-sponsoring a one-day Symposium on Diarrhea on Thursday, June 13, at the University Medical Center in Jackson.

There is to be no registration fee and the AAGP will allow five hours of Category I credit for attendance.

## **PROCEEDINGS OF SOCIETIES**

At the 15th meeting of the Southern Surgeons Club held at the University of Arkansas Medical Center at Little Rock, Dr. George T. Wood, High Point, N. C., was elected the new president. Other officers for the coming year are Dr. George N. Yeager, Baltimore, Md., vice president and Dr. Rollin A. Daniel, Nashville, Tenn., secretary-treasurer. Arkansas members and hosts for the session were Dr. Henry G. Hollenberg, Little Rock; Dr. Raymond Harrison, Newport, and Dr. Henry M. Carney, Texarkana.

The Mississippi County Medical Society met at the Seminole Club in Osceola for their April meeting. The program consisted of a panel discussion on urology with Dr. Raymond Mayer of the University of Tennessee as moderator.

"Doctor's Day," a nation-wide annual observance honoring those of the medical profession was celebrated during the month of March by several county medi-

cal societies and their auxiliaries. The Boone County Medical Auxiliary sponsored a dinner for the county medical society at Springlake in Harrison. At Fort Smith, a cocktail and dinner party at the Hardscrabble Country Club was given with members of the Woman's Auxiliary to the Sebastian County Medical Society as hostesses. The Arkansas County Medical Society was also entertained by their auxiliary with a dinner at Gene's Place at DeWitt. A buffet style supper at the home of Dr. and Mrs. Don Purcell of Paragould honored the Greene-Clay County Medical Society.

In April the Ouachita County Medical Society honored Dr. E. J. Byrd at a dinner in Hotel Camden, Camden, Ark., for his 50 years service in the medical profession. Dr. Byrd is also state senator from that district. Mr. C. Hamilton Moses, Little Rock, was the speaker. Mr. Paul Schaefer, Ft. Smith, executive secretary of the Arkansas Medical Society, presented Dr. Byrd with a life membership in the state society and also in the American Medical Association.

Dr. Pervis Milner of Memphis discussed "Myocardial Infarction" at the March meeting of the Craighead-Poinsett County Medical Society. The Society also heard Dr. Eugene H. Crawley talk on the Polio Eradication Program and was urged to participate in the vaccine drive. At their April meeting, Dr. W. Edward French, also of Memphis, discussed "The Peptic Ulcer that Requires Surgery".

Dr. G. G. Robertson was elected president of the Jackson County Medical Society at a recent meeting. Other officers elected were: Dr. John Wright, vice president and Dr. John D. Ashley, secretary-treasurer.

The April meeting of the Washington County Medical Society was held on the second day of the month at Schmidt's King Chicken.

Several members of the staff of the University of Arkansas School of Medicine appeared on the Postgraduate Symposium on Obstetrics and Gynecology at

Hotel Camden in Camden during March. Those on the program were Dr. Willis E. Brown, Dr. K. Kreth, Dr. E. Ellison and Dr. J. Nettles. Dr. Nettles is assistant professor of Gynecology, University of Chicago. The Ouachita County Medical Society sponsored the symposium.

Contributions to the **American Medical Education Foundation** during the month of March 1957:

Dr. Louise M. Henry,	
Fort Smith	\$25.00
	<hr/>
	\$25.00

There were 14 members present at the Fifty Year Club breakfast given in connection with the annual meeting of the Arkansas Medical Society and given by the society. The club was glad to report they had gained five members since their last meeting but reported with regret that they had lost 14 members. Dr. Howard B. Burchell of the Mayo Clinic was the guest speaker. Dr. L. H. McDaniel, a member of the club, also spoke. Dr. E. J. Byrd of Camden was chosen president, Dr. A. B. Tate of Russellville, vice president and Dr. J. H. McCurry of Cash was re-elected permanent secretary-treasurer. All doctors who have practiced fifty years or more who are not members and wish to join can write Dr. McCurry for more information.

## PERSONALS AND NEWS ITEMS

Recently **Dr. and Mrs. O. J. T. Johnston** of Batesville observed their fiftieth wedding anniversary. Because of Mrs. Johnston's illness there was no formal celebration of the day.

A new clinic in Rogers is being built by **Dr. Jim Pickens**. Dr. Pickens specializes in eye, ear, nose and throat ailments.

**Dr. Albert S. Koenig**, Ft. Smith, recently announced the association of **Dr. Lloyd L. Barta** with him in the practice of clinical and anatomic pathology.



## FEATURES

At the annual meeting of the Mid-Central States Orthopedic Society held in March at Colorado Springs, Col., **Dr. F. Walter Carruthers**, Little Rock was elected president. **Dr. Richard M. Logue**, also of Little Rock, was made a member of the Board of Governors for a two-year term. Little Rock was selected as a meeting place for the 1958 convention.

**Dr. H. V. Kirby** was re-elected president of the Harrison School Board at a meeting in March.

The final session of the convention of the Arkansas Dietetics Association was held at the University of Arkansas Medical Center. Speakers were **Dr. Paul L. Day**, professor of biochemistry and **Dr. Ben Heller**, professor of medicine, at the University.

Little Rock Branch, American Association of University Women heard an address on "Psychotherapy with Children" by **Dr. Ewin S. Chappell** at a luncheon recently in the Hotel Marion. Dr. Chappell is director of professional services for education at Fort Roots Veterans Hospital.

The Humphrey High School gymnasium was the gathering place where more than 700 persons honored **Dr. Arthur Fowler** as he completed his 50th year of medical practice. The program was based on events in Dr. Fowler's life. A plaque was presented to the doctor for the 50 years he has served the Humphrey area. He also received a movie projector and screen.

Recently, **Dr. R. B. Robins** of Camden was a speaker in a symposium on Office Procedures and Clinical Medicine, which was presented by the Guilford County Chapter of the North Carolina Academy of General Practice. The meeting was held at the King Cotton Hotel in Greensboro, North Carolina. Dr. Robins' subject was "Medical Philosophy in Economics".

The Arkansas state board of health has announced the appointment of **Dr. R. M.**

**Atkinson** of Bentonville as County Health Director of Benton County.

Chosen to be the Benton County chairman of the Easter Sale campaign was **Dr. Grier D. Warren** of Rogers.

**Dr. Kermit E. Krantz**, assistant professor of obstetrics and gynecology at the University of Arkansas School of Medicine has won a \$30,000 scholarship to allow him to devote himself to teaching and medical research for the next five years. The grant is one of 25 awarded by the John and Mary R. Markle Foundation of New York to Faculty members of medical schools in the United States and Canada.

The fellowship of the Arkansas Academy of General Practice has been awarded to **John W. Vinzant**, Augusta. The appointment is for two years with an annual stipend of \$500 and is given each year to an appointee in the General Practice Residency Program of the University of Arkansas.

One of 125 American doctors taking part in a two-day medical-legal symposium in Atlanta in March was **Dr. John M. Hundley**, Little Rock. The symposium was sponsored by the law department and committee on medical-legal problems of the American Medical Association.

## *Woman's Auxiliary*

The Phillips County Medical Auxiliary had a luncheon meeting at the Helena Country Club Tuesday, March 13th. The guest speaker at the meeting was Mrs. L. Gardner. Officers for 1957 were elected as follows: president, Mrs. George Gibbons; vice president, Mrs. Alfred Berger; Sec.-Treasurer, Mrs. Reuben Chrestman; and corresponding secy., Mrs. John Barrow. Mrs. H. B. Oldham is the retiring president. It was announced at the meeting that the new incubator purchased with the proceeds from the Fashion Show would be delivered to the Helena Hospital soon.



Mrs. N. B. Kersh was elected president of the Hot Spring County Medical Auxiliary at the February meeting held in the home of Mrs. R. V. McCray. Other officers include, Mrs. W. F. Barrier, vice president; Mrs. Raymond Peeples, secretary and treasurer, and Mrs. C. R. Ellis, reporter.

Hostesses for the March luncheon meeting of the Woman's Auxiliary to Pulaski County Medical Society were Mrs. Elbert Wilkes, chairman, Mrs. Melvin McCaskill, Mrs. A. J. Brizzolara, Mrs. Alfred Kahn, Jr., and Mrs. Frank Kumpuris. After lunch, members attended the Rural Health Conference at the Medical Center.

Mrs. Max Mobley was hostess at the dinner meeting of the Woman's Auxiliary of the Pope-Yell Medical Society which was held at the Hotel Pearson in Russellville during March. Mrs. Ernest King presided at the business meeting which followed.

New officers of Jefferson County Medical Auxiliary elected in March are: Mrs. Arthur Fowler Jr., president; Mrs. E. L. Hutchison, president-elect; Mrs. James Rhyne, vice president; Mrs. J. Richard Pierce Jr., secretary; Mrs. S. C. Monroe, treasurer; Mrs. Ralph Wooley, publicity secretary; and Mrs. W. T. Lowe, historian. Mrs. Fowler and Mrs. Hutchison served as delegates to the state meeting in Little Rock. Mr. Eugene R. Warren, legal advisor to the state Medical society, spoke to Jefferson County Auxiliary in March on "Quacks and Quackery."

"Medical Legislation" was the subject of an address given by Representative Ray S. Smith Jr. before members of Garland County Medical Auxiliary in March. Mrs. Homer K. Wright was hostess for the meeting, with Mrs. Lon E. Reed, Mrs. Jack Wright, and Mrs. William A. Goodrum serving as co-hostesses.

Boone County Medical Auxiliary heard a talk on mental health given by one of its members, Mrs. Ulys Jackson, in March. Two films, "Emotional Health", and "Danger at the Source", were shown following Mrs. Jackson's talk. These

films, produced by the American Medical Association, stress the great need for research in the field of mental health and also show the importance of medical education in the field of mental health.

Mrs. Marlin Hoge was installed as president of Sebastian County Medical Auxiliary in May. Other officers serving with Mrs. Hoge for the coming year are: Mrs. L. A. Whittaker, Jr., vice-president; Mrs. Gordon ReMine, secretary; and Mrs. Louis Lambiotte, treasurer.

New officers of the Woman's Auxiliary to the Arkansas Medical Society elected at the 1957 state convention are: president, Mrs. J. W. Kennedy, Arkadelphia; president-elect, Mrs. Gordon P. Oates, Little Rock; first vice-president, Mrs. John W. Jones, Texarkana; second vice-president, Mrs. Howard Rands, Dumas; third vice-president, Mrs. A. J. Forrestiere, Harrisburg; fourth vice-president, Mrs. A. R. Hammon, Harrison; recording secretary, Mrs. A. S. Koenig, Fort Smith; publicity secretary, Mrs. L. A. Whittaker, Jr., Fort Smith; corresponding secretary, Mrs. Joe Reid, Arkadelphia; treasurer, Mrs. Mason Lawson, Little Rock; historian, Mrs. C. W. Garrison, Little Rock; and parliamentarian, Mrs. Paul Gray, Batesville.

## Obituary

Death claimed Dr. C. W. Donaldson, 84, of Green Forest, Tuesday, March 12. Dr. Donaldson had been in ill health for many months. He was a native of Carroll County and was born on a farm near Denver on November 8, 1872. Dr. Donaldson enjoyed a wide practice and resided in Green Forest during all of his active years. He was one of the county's pioneer country doctors beginning his practice in the days when he made his calls on horseback. He had been practicing in the Green Forest Community since 1901. He was a member of the Green Forest Masonic Lodge and a member of the Christian Church. His survivors include two sons, Dr. J. K. Donald-

son of Little Rock and Paul Donaldson of near Green Forest; two brothers, George Donaldson of Portland, Oregon, and Henry Donaldson of Berryville; one sister, Lovetta Duncan of Pocatello, Idaho. He is also survived by four grandchildren and one great grandchild.

Dr. Cecil Harrod Dickerson, aged 73, a practicing physician and surgeon at Conway 46 years, died Wednesday, March 27, at his home. Dr. Dickerson was born at Conway. He graduated from Conway High School and received his bachelor of arts degree from Hendrix College and his doctorate in medicine from Washington University. He began his practice in Conway after graduating from Washington but later did graduate work at Tulane, Harvard, Chicago and Columbia University. He established the Dickerson Clinic in 1941 and operated it until 1955. He has been resident physician for Hendrix College since 1925. Dr. Dickerson was president of the Faulkner County Medical Society, and a charter member and past president of the Conway Rotary Club. Dr. Dickerson was a Methodist and a 32nd Degree Mason and was a member of the Arkansas Medical Society and the American Medical Association. He is survived by his wife, Mrs. Nina Martin Dickerson; two sons, Dr. Cecil H. Dickerson, Jr. of Conway and Dr. Martin Dickerson of Monticello, Ind.; a brother, George Dickerson of Helena, and a sister, Mrs. Mary A. Little of Ciudad Trujillo, Dominican Republic.

Dr. John Eugene Parson, 49, a Little Rock physician and surgeon, died March 25 in Hot Springs. Dr. Parsons attended Little Rock public schools and was graduated from Hendrix College at Conway and the University of Arkansas School of Medicine. He served his internship at St. Vincent's and later became a member of the hospital staff. Dr. Parsons was a member of the Bauxite Methodist Church in Bauxite, Alumnae Masonic Lodge No. 574, the Arkansas Consistory, Scimitar Shrine, Arkansas State Medical Society, Southern Medical Association, American Medical Association and the College International DeChirurgien. Survivors include his widow, Mrs. Ruby Wilson Parsons and a daughter, Miss Betty Ann Parsons, both of Little Rock.

## TUBERCULOSIS ABSTRACTS\*

Sponsored by  
The Arkansas Tuberculosis Association

### The Crossing of the Curves: Tuberculosis and Lung Cancer

- Among the serious chronic pulmonary diseases, cancer of the lung is challenging tuberculosis in frequency and has already surpassed it in mortality. Essentially the same case-finding, diagnostic, and surgical machinery can be employed against the two diseases. Cancer of the lung is revealing an epidemiologic pattern which may prove helpful in the understanding and control of the disease. No obscure lung disease can be considered as satisfactorily assessed until cancer and tuberculosis have been excluded.

By Edward Kupka, M.D., and Lester Breslow, M.D.  
Diseases of the Chest, January, 1957

#### INTRODUCTION

The decline in tuberculosis mortality and the sharp rise in lung cancer mortality have led to a "Crossing of the Curves." By 1950 in California primary cancer of the trachea, bronchus and lung was causing more deaths than tuberculosis among persons 65 years of age and over. By 1954 lung cancer deaths exceeded deaths from all forms of tuberculosis in the whole population.

Since 1930 tuberculosis mortality has dropped to one-tenth of its rate at that time. The respiratory cancer rate, meanwhile, has more than trebled with lung cancer comprising an ever larger proportion of the total.

#### Death Rates Per 100,000 Population, California

	1930	1954
Tuberculosis, all forms .....	99.1	9.8
Tuberculosis, respiratory .....	88.4	9.0
Cancer, respiratory system .....	5.2	17.9

#### FACTORS IN REDUCTION OF TUBERCULOSIS MORTALITY

Two groups of factors have contributed to the decline in tuberculosis mortality. First are the medical developments and second the general improvement in standard of living. Together they have accounted for a steady decline in tuberculosis mortality. The addition of antibiotics and other potent drugs to the therapeutic resources has accelerated the rate of decline. The annual incidence rate has likewise decreased, but at a less rapid rate. The tre-



mendous expansion of X-ray survey programs has increased the proportion of known tuberculosis, but since in the U. S. there are still an estimated 150,000 unreported and largely undiagnosed and unsuspected persons with active tuberculosis diagnostic activities and propaganda for more frequent X-ray films must continue unabated.

A gradual change in the differential diagnostic problem is evident. In past years, tuberculosis was found more commonly on the chest film than all other serious chronic lung conditions combined. Today, lung cancer and lung suppuration challenge tuberculosis in frequency.

#### FACTORS IN THE INCREASE OF LUNG CANCER MORTALITY

Because so few patients with lung cancer survive even with treatment, the age-adjusted mortality rate remains the best measure of the disease. This rate is still increasing rapidly. Improved methods of diagnosis account in part for the rise in lung cancer deaths. However, since 1940, the mortality rate for men in California has increased 147 per cent while that for women has been only 29 per cent.

Three sets of factors have been suggested to account for the increase and present data indicate that each of the three play a role in the development of lung cancer. Many studies have disclosed a greater frequency of cigarette smoking, especially heavy cigarette smoking, among patients with lung cancer as compared with controls. Several occupations have been incriminated, particularly those involving exposure to certain metallic substances or fumes. In this country carcinogenic substances have been isolated from polluted city air.

In evaluating the carcinogenic effects of environmental agents one must bear in mind the time factor. The evidence suggests that environmental factors lead to human cancer only after many years of exposure. Hence, the rise in lung cancer mortality during the period 1930-1960 may reflect environmental factors during the first half of this century. Likewise the environmental changes during recent years—e.g., vast increases in cigarette smoking among women and among young people of both sexes, entry of hundreds of thousands

of persons into such occupations as welding, the heavy air pollution of certain cities—may portend a continuing increase in lung cancer mortality during the latter half of this century.

#### TUBERCULOSIS AND LUNG CANCER MORTALITY PATTERNS

The male predominates in mortality from both conditions. The ratio is about three to one in the case of tuberculosis, and five to one in lung carcinoma.

Tuberculosis, formerly a disease of adolescents and young adults predominantly, has now become a disease of middle aged and older persons predominantly. Lung cancer, too, is a disease of the middle and later years of life.

Tuberculosis is especially prevalent in slum areas, among poorly nourished persons, and among those living in contact with infectious cases. Lung carcinoma is more scattered in their distribution; housing and nutritional factors seem to pay little, if any, role.

#### DIAGNOSIS AND TREATMENT

Ordinarily, an X-ray film of the chest is the earliest method of detecting either disease. However, certain forms of tuberculosis and carcinoma cannot be easily differentiated on the film. In fact, the X-ray film usually cannot be considered definitively diagnostic unless supplemented by laboratory methods and histologic examination. In the case of tuberculosis, the demonstration of tubercle bacilli is definitive. In the case of carcinoma, biopsy or cytologic examination may give the answer. Every clinically silent lesion casting shadow on the chest X-ray film must have tuberculosis and carcinoma ruled out before any other diagnosis can safely be made. Resection of lung containing a small cancerous nodule in a person in apparently good health represents a triumph of preventive medicine.

The organization and technical machinery originally set up for tuberculosis can be and is being used increasingly to attack the problem of cancer of the lung. The same skills are necessary for diagnosis and treatment. As time goes on the epidemiology of cancer of the lung will assume a larger importance, and this will concern all health departments.

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SEARLE



EPIDEMIOLOGIC APPROACHES TO CONTROL

The final conquest of tuberculosis depends upon preventing the transmission of infection from one person to another. Elimination of slums, the examination of every contact of tuberculosis cases, the X-ray film examination of every hospital and prison admission and the isolation of infectious persons will cut so many chains of person-to-person infection that virtual disappearance of the disease may be hoped for.

The factor of resistance is a very important one in tuberculosis. Improvement in general health and lessened crowding make transmission less likely. A significant factor in tuberculosis control is alcoholism which reduces resistance and increases chances of transmission.

No dependable data are at hand regarding the role of smoking in tuberculosis. However, respiratory trauma, which is inevitable in a coughing, compulsive smoker, probably decreases the ability of pulmonary tissue to defend itself against the tubercle bacillus. On the other hand, overwhelming epidemiological evidence now indicates that cigarette smoking is an important causative factor in lung cancer.

Further studies should be carried out. Even more needed is epidemiologic study of air pollution and occupations as causative factors in lung cancer. It is conceivable that cigarette smoking may have been the most important causative element in the increasing mortality from lung cancer up to the present time, but that other environmental factors may be active and more so in the future. Laboratory studies should be carried out to isolate the specific substances in the environment and the mechanics of action.

## BOOK REVIEWS

**General Urology.** Donald R. Smith, M. D. Lange Medical Publications, Los Altos, California. Pp. 328. 1957. \$4.50.

This textbook is printed in outline form. It has many illustrations, both photographs and drawings. Its style makes it of interest to the medical student and general physician. There is not

enough detail present in the book to make it an adequate reference book. This book is recommended as a good book for teaching urology to both medical students and housestaff. AK

**"The Fight for Fluoridation",** Donald R. McNeil, M. S.—Ph.D. Oxford University Press, Inc. New York. Pp. 241. 1957. \$5.00.

The book, although of academic interest only, makes exciting and informative reading. The story starts with the observations of Dr. Frederick S. McKay, a young dentist in Colorado Springs, Colorado.

Dr. McKay's first observations and interest was the mottled enamel, or Fluorosis of the enamel, all natives of this area seemed to have. These observations were made in 1901 and the stain was dubbed "Colorado Stain".

A long and continuous search for the cause of this stain ensued. It was nearly thirty years before water was definitely found to be the cause. Another exciting period of research and water analysis by Chemist, Dentist, Public health officials, and water works engineers ensued before fluorine, as a trace element, was found to be the offender.

The book deals with the exhaustive research and records kept by the dentist, who quite by chance noted in thousands of people with the mottled enamel that tooth decay was almost non-existent. This led to the desire for adding the correct amount of Sodium Fluoride to our municipal drinking water.

After finally determining that Sodium Fluoride in concentrations of one part per million was the optimum amount to provide protection against the ravages of tooth decay, the long fight of the proponents of the program began. Their aim is to have all municipal water supplies fluoridated. This was after an accurate and exhaustive study of five years by several control cities.

The book brings out that although the addition of Sodium Fluoride to public drinking water is approved by the U. S. Public Health Service, the A. M. A., the A. D. A., and many scientific organizations there is still a viscous battle being waged by the opponents of the measure. Opponents make such claims as the program being Communist inspired, that Na Fl causes cancer, baldness, arthritis, and gastro-intestinal upsets.

Several chapters deal with the battle between the opponents and proponents. This gets to be quite superfluous and repetitious and is of historical significance only.

In conclusion we find that Sodium Fluoride added to our public drinking water will reduce tooth decay by 60 percent in our children. There are now well over 30,000,000 people in the United States drinking artificially fluoridated water.

The book is an excellent source of information on Sodium Fluoride and what it does in the continuing battle against dental caries—man's most prevalent ailment.

Marion Brown, D. D. S.  
Little Rock, Ark.

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## Indications and Contraindications in the Use of Ultrasonic Therapy in Medicine\*

JOHN H. ALDES, M. D., F.A.C.S.\*\*

### HISTORY

The saying that there is nothing new under the sun applies to medicine as well as to other phases of life. This fact is substantiated by the comparison of modern treatment methods in medicine to those used many centuries ago. Today we use ultrasound in medical treatments, and medical history states that sound waves were used for therapeutic purposes during the middle ages. We find in the writings that a large organ was provided with a glass sound board on which individuals were placed and subjected to vibrations. This type of therapy was used for curative effort mainly for mental patients.

In the medical writings of 1798 it is noted that an explosion in Landau was found to have a deleterious effect on individuals, and it was reported that these results were due to the effect of the sound waves. It is also noted in the history of sound that in that same year very large fish were found destroyed on the banks of rivers as the result of heavy gun fire. It is stated that these disastrous consequences were attributed mainly to audible sounds, and possibly also to the accompanying infratones (1).

In 1880, Francis Galton experimented in his laboratory and constructed the well known Galton whistle (2). With this device he conducted experiments in ultrasonic waves, but the development of ultrasound was credited to Pierre Curie. In 1880 Pierre Curie and his brother Jacques discovered what they called "piezoelectric

effect". They were able to demonstrate that when a piece of quartz crystal was properly placed in an alternating electric field, the crystal would throb, or vibrate, giving out sound waves (3). These experiments revealed that if the vibrations were between 20 and 17,000 cycles per second they could be heard by the human ear. However, if they were rapid, with a frequency of more than 17,000 per second, they were inaudible, and are in what today we call the ultrasonic range.

In the first part of the twentieth century it was learned that ultrasonic waves could travel a great distance through water and could be focused into a narrow beam. In 1915 Chelowsky demonstrated an electrovibrator for the French Government, and in that same year Raymond Poincare, President of France, was informed that ultrasonic beams might be helpful in detecting submerged submarines. Dr. Paul Langevin, Professor of the School of Physics and Chemistry in Paris and a former student of Pierre Curie, was asked by Poincare to investigate. Langevin's work eventually led to the development of Sonar, which had no practical application in the First World War but was extensively used for underwater detection in World War II (1).

During the First World War, Paul Langevin built an ultrasonic machine that could shoot out a narrow beam of sound waves through water, and in his various experiments he found that these sound waves could destroy fish who passed through its path. This beam, which is now known as an ultrasonic ray, was sound, pitched so high it could not be heard by human ears. At that time experiments showed that this sound ray had ruptur-

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\*\*Orthopedic Surgeon in charge, Department of Rehabilitation, Cedars of Lebanon Hospital, Los Angeles, California.



ing effects upon metals, microbes, and fish, but for the next twenty years the possibility of the application of this ultrasonic ray in medicine was generally ignored. (1, 3).

In 1917 Robert Williams Wood, a former Professor of Physics at Johns Hopkins University who was then in the United States Army, had witnessed some of Langevin's experiments. Several years later on his return to the United States, he and Alfred Lee Loomis, a talented amateur scientist, started the investigation of ultrasonic waves. With the aid of friends at General Electric Corporation, they built an ultrasonic generator and proceeded to use it on nearly every object which came to hand. In 1927 they made their first report which revealed that this beam, later becoming known as ultrasonics, could heat water, melt ice, make emulsions of paraffin and mercury in water, rupture blood cells, destroy small fish, and split water plants into tiny fragments (1, 2, 3).

In 1932, Muelwert and Voss reported the use of ultrasonics in chronic deafness, but those who were treated and had shown improvement, later found their improvement only temporary. This failure in its first medical application gave ultrasound a set back that lasted about ten years (1, 3).

In 1938 Pohlman, a German engineer, recognized that ultrasonic waves had therapeutic benefits and stimulating effects and that their destructive influence could be eliminated by reduction of dosage. In the same year he built an ultrasonic generator at the University of Berlin and interested several physicians in its application in medicine. Thus the first therapeutic tests on patients were instituted (1, 2, 3).

In 1939 Pohlman and associates gave a preliminary report on the use of ultrasonic radiation in sciatica and with their finding they aroused wide enthusiasm and interest in ultrasonic therapy in Germany, France and Italy.

During the next few years many machines were built and used by physicians in Europe. Many of the earlier modalities were poorly constructed and difficult

to regulate, being dangerous to both the patient and the doctor. Few of the so-called experiments were under scientific control. Treatments were prescribed indiscriminately not only for arthritis, sciatica, neuritis and similar ailments, but for practically every type of disease known in medical literature. This phase of overwhelming enthusiasm for the use of ultrasonic therapy took place in Europe during World War II, but few British or American medical men were involved, or even knew much about this type of radiation. In some instances, when British and American prisoners were returned from Germany and described the quick relief they had obtained from sciatica or neuritis by ultrasonic therapy, their enthusiasm resulted in investigation into the type of therapy they had received. (1)

In the United States the first report on the use of ultrasonics in medicine was made in 1948. Since that time extensive laboratory and clinical work has been carried on in the use of ultrasonic radiation in medicine and surgery (3).

#### PRODUCTION OF ULTRASONIC RADIATION

The human ear is limited to perception of sound waves between 16 cycles and 17,000 cycles per second, which is audible sound. Waves of 0 to 16 cycles per second are called infratones, while those exceeding 17,000 per second are in the ultrasonic range. As has been mentioned before, audible sounds as well as infratones may have a very harmful influence on the human body. It has been shown that individuals in the presence of ringing bells may show deleterious effects. Workers with pneumatic hammers who are exposed to infratones show various symptoms attributed to these low frequencies. Numerous animals produce sounds inaudible to human ears which can be caught by the receptors of their own or other species. Busnel of the State Laboratory in Jouyen-Josas, outside Paris, has done extensive investigation on the sound produced by animals and has shown that these sounds can be artificially reproduced mechanically (4). We note in animals that alligators are able to hear at 4,000 cycles per second. The chimpanzee can hear vibrations of 30,000 per second, the bat

## INDICATIONS AND CONTRAINDICATIONS IN ULTRASONIC THERAPY

50,000 cycles per second, and the owl 70,000 cycles per second.

Ultrasonic waves were first produced by the magnetostriction method. A rod of ferro-electrical metal is magnetized by the passage of electric current through it. The north and south poles of such metal attract each other and therefore the rod will become a fraction shorter while the current is passing through it. When the direction of the current is changed, the poles will change places. In between, the rod will be neutralized for a short period and then elongate again. On continuous alteration the rod will thus regularly become longer and shorter. It is this vibration which in turn produces waves of sound. This method of ultrasound production is used commercially for the drilling of hard metals (5).

Ultrasonic waves for therapeutic purposes are usually produced by the piezoelectric crystal method. The ultrasonic generator consists mainly of a high frequency is between 800,000 and 1 million cycles per second. The integral part of the hollow metal applicator. By exposing opposite sides of the quartz crystal to an alternating electric field, the crystal is caused to vibrate and the resulting ultrasonic vibrations are transmitted to the front plate of a treatment head.

Ultrasonic frequencies used in medicine are produced by this type of generator with a range between 500,000 to 3 million cycles per second. The optimal frequency is between 800,000 and 1 million cycles per second. At these frequencies the layers of tissue 2 to 6 cm. deep can be reached by ultrasonic waves. The effect decreases with depth because of reflection, refraction, or absorption in tissue. The important factors are the coupling medium, the absorption coefficient of the specific tissue, and the ultrasonic intensity applied.

With a frequency of 3 million cycles per second, the layer of tissue that can be reached by ultrasonic waves is from 0 to 2 cm. in depth. This type of frequency is used for pathological conditions in the subcutaneous layers or on the skin surface.

Ultrasonic waves will not travel through a vacuum and transmission

through air is ineffective. Therefore a coupling agent such as oil of high viscosity or water is necessary between the treatment head and the area to be treated (2, 6).

### PROPERTIES AND EFFECTS OF ULTRASONICS

Very high intensities may greatly affect the molecular structure of the tissues and cause damage or even necrosis, as demonstrated in animal experiments. The Arnt-Schultz principle holds true that weak stimuli excite living processes while strong stimuli are destructive. Consequently only low intensities should be used for therapeutic purposes in medicine (2).

Most important among the numerous biochemical, biophysical, and physiological effects of ultrasonic radiation is the powerful micro-massage to which the cellular tissues are subjected. These mechanical vibrations increase active blood supply, influence the sympathetic and parasympathetic nervous system, stimulate metabolism, and produce an analgesic effect. Frequently the skin becomes hyperemic. The significant secondary therapeutic thermal effect is produced within the tissue. Further results include degassing action, and intensification of gas exchange through increased membrane permeability, breaking up of tissue deposits and promotion of their absorption, acceleration of lymph flow, destruction of bacteria, and changes in blood chemistry. These and numerous other physical, chemical, and biological effects cannot be separated, but they all play a certain role to improve mobility and relieve pain (2).

In Europe during the past twenty-five years laboratory and clinical investigation was carried out in reference to the physical, chemical, physiological and biological effects of ultrasound on tissues (7, 8, 9, 10, 11, 12). In the United States during the past eight years various scientists and clinicians have been furthering this study (14, 15, 16, 17).

### APPLICATION OF ULTRASONIC RADIATION

During the past seven years our basic treatment methods in the application of ultrasonic radiation for various pathologies have not changed, though there have



been variations in the methods and changes in frequency, intensity and duration. These changes have been made possible by continual evaluation of the therapeutic effects of ultrasonic radiation in animal and clinical investigations. We have also had the valuable experience of following over 6,000 cases for an average of three years since ultrasonic therapy had been administered (18, 19).

There are two methods of treatment; one, the direct method wherein oil of high viscosity, such as liquid petrolatum, is the coupling agent between the source of ultrasonic radiation (transducer) and the skin over the area to be treated; and two, the indirect method in which water is the coupling agent. In each of these methods there is a choice between two techniques: The gliding or massage technique, and the stationary technique. The direct method is employed whenever direct contact can be made by the transducer to the skin; for example, the cervical area, entire back, pelvic area, thighs, shoulders and arms.

A coupling agent of heavy liquid petrolatum is used and is applied generously over the skin area to be radiated, as well as over the source of energy, which is the flat surface over the head of the transducer. Firm contact must be made between the flat surface of the transducer and the skin, and the radiation is applied with a gliding or massage technique, using slow circular movements of the sound head. A distance of not more than 20 cm. is covered in one minute, and this procedure is repeated until the surface to be treated has been completely covered (1, 20).

In the indirect method the area to be treated is submerged in water and the transducer, also submerged, is kept at a distance of one-half inch away from the skin surface which is to receive the ultrasonic radiation. This method is used when the surface of the area to be treated is irregular and does not allow direct contact with the transducer; for example, the hands, forearms, feet or legs. In this technique we also use a gliding rotating movement of the transducer, covering a distance of 20 cm. in one minute. In the indirect method water is the coupling agent between the head of the transducer

and the skin area receiving the radiation (1, 21).

The stationary technique is a form of application used both in the direct and indirect methods. In the direct method it consists of the use of oil as the coupling agent and, instead of using a gliding or massage technique, the head of the transducer is kept firmly over the site to be sonated without moving the transducer at all. This technique is used infrequently and in our experience only in combination with the direct method in cases of subdeltoid bursitis when calcareous deposits are present. In the stationary method the frequency was 1 megacycle, and the intensities ranged from 0.1 to 0.2 w/cm.<sup>2</sup> The duration of radiation was not more than one minute to the involved area (20, 22). The stationary technique can be used with the indirect method as well, but in that instance water is the coupling agent and the head of the transducer is kept one-half inch away from the area to be sonated. This technique also is used infrequently, but when employed it is to focus the beam of the ultrasonic ray to a specific area.

The ultrasonic instruments used in our study varied from 1 megacycle to 3 megacycles, with most conditions requiring a frequency of 1 megacycle. Frequencies of 3 megacycles per second were used only for dermatological cases, or when the pathology was close to the skin surface (18, 19, 23).

The transducers used were those having a piezoelectrical crystal surface ranging between 4.5 to 12.0 sq. cm. With this type of transducer and with a frequency of 1 megacycle per second the maximum intensity obtained from the ultrasonic generator was 3 w/cm.<sup>2</sup> with a total output of 15 watts.

The intensities used in our study ranged from 0.2 w/cm.<sup>2</sup> to 2.0 w/cm.<sup>2</sup> At the beginning of our study in 1950 the intensities used were much higher than at the present (1, 6, 20). After careful evaluation of our methods and the results obtained by laboratory experiments and clinical observations, we are of the opinion that the optimum intensities should range between 0.5 w/cm.<sup>2</sup> and 0.8 w/cm.<sup>2</sup> with intensity never to exceed 1 w/cm.<sup>2</sup>

With these low intensities our duration of sonation has increased to an average of 20 to 30 minutes for each application. We also recommend that the ultrasonic generator have a frequency of one megacycle per second with a transducer having a piezoelectric crystal surface of about 5 sq. cm. With these frequencies and intensities it is possible to reach any site to be sonated, providing the approach is not abnormally impaired by intervening interfaces, such as air spaces, adipose tissue, periosteum or bone.

The site to be sonated must be carefully considered in selecting the optimal dose, as the depth of the target point below the skin surface varies in different parts of the body; for example, the overlying tissue is thicker in the gluteal area than in the forearm, and therefore the dose for the gluteal area must be higher than that for the forearm.

The dosage is adjusted to the specific disease and the severity of the condition, refractory cases calling for a greater amount of sonation. Furthermore, each time a treatment is given the physician should take into consideration the subjective and objective findings, and fit the dosage to the prevailing circumstances.

Ultrasonic radiation is administered in a sequence of series, each series consisting of ten to twelve sonations. In acute cases sonation is given daily, in mild, or chronic cases every other day. The application periods range from five to thirty minutes, determined by the acuteness of the condition and the size and depth of the area to be treated.

Each patient receives one full series of treatment and then is given a therapeutic holiday for two weeks, but is checked at various intervals during this two weeks. If the response is favorable but improvement only transient, then another series is given after conclusion of the therapeutic holiday. The second series usually consists of fewer sonations, but applied every other day as in the first series. Whenever it appears necessary, a third series is administered, but only after another rest period. The most satisfactory results are obtained by increasing both the intensity and the duration from one series to the next. Continuation of sonations over more than six weeks without a rest pe-

riod inbetween is ill-advised and definitely contraindicated. We have found that the chronic conditions such as bursitis and arthritides of the spine and major joints require more than one series of sonations. In other pathologies such as acute strains or sprains, epicondylitis, acute bursitis, fibrositis, sinusitis and dermatological conditions, fewer radiations are necessary. The number of sonations required is determined by the results obtained (1, 20, 21, 22, 24, 23).

In acute conditions such as sprains or bursitis, we have found that the intensity of the ultrasonic radiation must be very low and the duration of application short. In these cases, if the intensities are high, the patient will be subject to extreme pain following the application.

In our application we usually follow the theories of radicular and neurotrophic therapy advocated by Tschannen and Stuhlfauth (25) in which sonations are administered not only locally but also to the respective nerve root areas.

If adequate intensities of ultrasonic radiation are given the patient usually experiences a reaction of discomfort about three hours later. This discomfort is relieved by mild sedation. Only in our more apprehensive patients are we forced to use codeine or its derivatives.

Pain occurring during radiation is an indication that the intensity is too high or an insufficient coupling agent is being used. This is one of the cardinal symptoms one must watch for when applying ultrasonic radiation. The patient should experience no pain or discomfort during application but only a warm, soothing sensation over the area sonated.

In a large percentage of our cases a more rapid improvement was noted when the ultrasonic radiation was followed by the use of hot packs (hydrocollator) or hydrotherapy, depending upon the area to be treated. In addition to improving the end result the patient feels greater relief and there is a lessening of the post radiation pain syndrome when hydrotherapy or hot packs are used.

Before considering the use of ultrasonic radiation, the patient should be completely evaluated, including blood and urine examinations, and x-ray studies of



the involved area. Fourteen days after the first series the patient should be rechecked. Thereafter he should be evaluated at monthly intervals for the following year, and after that every six months. In our series, x-ray examinations were made three months after conclusion of the first series, six months later, and then yearly. In our complete series which we are reporting, repeated x-rays and blood and urine examinations revealed no abnormal changes or ill effects from ultrasonic radiation.

#### CONTRAINDICATIONS

In discussing the contraindications for the use of ultrasonic radiation in humans we must bear in mind the fact that many of the published accounts report harmful influence of ultrasonic radiation on tissues in animals. However, these results in animals have been deliberately created for the purpose of investigating the physical, chemical, physiological and biological effects of ultrasonic radiation. In the past in the United States and Europe many investigators using laboratory animals in the study of the biological phenomena of ultrasonic radiation on tissue were using destructive doses, high intensities, and high frequencies, and thus the authors of these reports at that time concluded that ultrasound was too dangerous an agent for general use as a therapeutic modality (13, 15, 26). Today there is complete agreement in Europe and the United States that ultrasonic radiation is not only a safe therapeutic device but beneficial in various conditions when given at therapeutic levels of low intensity, frequencies ranging between 800,000 and 3 million cycles per second, an optimal range around 1 million, intensity ranging from 0.1 w/cm<sup>2</sup> and 2.0 w/cm<sup>2</sup> and applied by trained medical personnel (27, 28, 29).

As with pharmaceutical preparations and other physical agents for the treatment of disease, certain basic contraindications must be strictly followed in order to attain a beneficial therapeutic result. As previously mentioned, under no circumstances should the patient suffer pain or discomfort during the time of radiation. Pain at the time of sonation may be due to too high an intensity, insufficient

coupling agent, or an inadequate frequency for the pathology under treatment. Many investigators have shown that tissue damage is proceeded by neuralgic or periosteal pain. Therefore the patient at the time of sonation must be questioned to see whether there is any pain accompanying radiation. The sensory reactions of the patient must be determined by a neurological examination prior to beginning therapy in order to make certain that he is able to detect pain.

The European and American investigators have cautioned against use of ultrasonic radiation in certain areas of the body, especially the epiphyses of children, bony prominences, reproductive organs, over liver or spleen and over brain tissue. In the presence of heart disease, pregnancy, pelvic and urinary involvement, tuberculous lesions, benign or malignant tumors, ultrasonic radiation should be eliminated (2, 30, 31, 32, 33). At the present time with the increase in research and the improvement of the ultrasonic generators and transducers, ultrasonic therapy may sometimes be safe in the conditions mentioned above. In our experience we have strictly adhered to conservative practice in respect to contraindications, duration and intensities, and we recommend that this practice be continued until such time as it is definitely proven through animal experiments that ultrasonic radiation can be used on heretofore contraindicated areas. We feel that ultrasonic radiation should not be considered for therapy unless x-rays are taken of the local area to be sonated as well as the area of the spine wherein the respective nerve roots are also to be radiated. Again I must emphasize that considering all these factors, the use of ultrasonic radiation as a therapy should produce no deleterious effects.

#### INDICATIONS OF RESULTS

When studying the literature on a new drug or physical agent we naturally come across a great number of indications. This is due to the fact that the physician is anxious and ready to apply new remedies where heretofore no remedy had proved successful for a particular condition. It is generally true that a new therapy is ineffective in many diseases and

## INDICATIONS AND CONTRAINDICATIONS IN ULTRASONIC THERAPY

this holds true also in ultrasonic radiation.

In evaluating ultrasonic radiation in our clinic and laboratory at Cedars of Lebanon Hospital in Los Angeles, our study has been directed toward the basic medical research in this field, aiming toward further clarification of the method of application of this therapeutic agent, techniques in its use, most beneficial frequencies and intensities, indications and contraindications. From our presentation of our first report in 1950 when we presented the evaluation of the use of ultrasonics in 153 patients suffering from degenerative arthritis of the spine (2) to our report today which covers a seven year evaluation with statistical results from over 6,000 patients, (18, 19) we have applied ultrasonic therapy with an open mind to determine its value. We have used ultrasonic radiation only in those pathologies wherein we felt the physical, chemical, physiological and biological effects of ultrasonics would benefit the condition. As I have mentioned, the basic methods of application have remained the same. However, we have learned to improve the techniques and have found lower intensities, longer duration, and frequencies of 1 megacycle to be of greater benefit than the techniques or dosages used in the beginning of our evaluation in 1950.

In discussing the indications for ultrasonics, I am presenting those conditions wherein we have used this therapy over a period of seven years and have evaluated the results. Although our first applications were in conditions of arthritides or the spine, we have since then treated the rheumatoid groups, articular arthritis, bursitis, traumatic conditions, dermatological conditions, Herpes Zoster, sinusitis, and various miscellaneous conditions. This study covers the actual evaluation of 6,013 cases who were given 108,234 sonations, and have been followed for at least three years since their last sonation. The overall improvement and relief of symptoms in the entire group was 79.9 per cent (18, 19, 23).

### ARTHRITIDE

#### SPINAL ARTHRITIS, DEGENERATIVE

This group represents 2,069 patients having spinal arthritis, with and without

radiculitis. There were 797 cases with cervical arthritis, 281 with dorsal arthritis, and 991 with lumbar arthritis. Those with cervical arthritis and radiculitis improved more rapidly than those with arthritis of the dorsal or lumbar spine. One-third of those with cervical arthritis gave histories of aggravation secondary to acute strain. 25 per cent of the lumbar arthritis cases were aggravated by strains of the lower back secondary to an accident. In the traumatic group, rapid relief was usually obtained. In our evaluation we felt the most spectacular results were obtained in the chronic arthritis group, although the length of treatment time was longer. About 40 per cent of this group had to have a second series of ultrasonic radiation. Of this entire group 1,615 patients, or 78.6 per cent showed relief of symptoms.

#### RHEUMATOID GROUP (ATROPHIC)

In this group of 302 cases, 82 were diagnosed as Marie-Strumpell's disease, 166 residuals of rheumatoid arthritis of the upper extremities, and 54 residuals of rheumatoid arthritis of the lower extremities. The intensities used in Marie-Strumpell's disease must be higher than in other pathologies. In this group we had to use intensities varying between 1.5 to 2.0 w/cm<sup>2</sup>. In our first group of patients with rheumatoid arthritis who were treated with ultrasonic therapy, we used lower intensities and the results were poor. With increased intensities and longer duration, our results were more encouraging. In this group we found the better results were with a combination type of therapy; that is, ultrasonic radiation following by hot-packing (Hydrocollator) to the spine. In the group of 82 patients with Marie-Strumpell's disease, 51, or 62 per cent had relief of symptoms. Of the 220 cases of rheumatoid arthritis affecting the upper and lower extremities in which ultrasonic radiation was used, 130, or 59 per cent showed relief from subjective and objective symptoms. The overall improvement in this entire group with rheumatoid arthritis was 60.5 per cent.

#### ARTHRITIDES—JOINT INVOLVEMENT

##### ARTICULAR ARTHRITIS DEGENERATIVE

This group of 1,128 cases with 1,470 joint involvements showed arthritic



changes, hypertrophic and degenerative, not only in the major joints of the body, but also in the small joint of the hands and feet. The direct method was applied to the shoulder, hip, and knee joints, and the indirect or subaqueous method to the elbow, wrist, hand, ankle and foot. Of this group with joint involvement, 966 patients, or 86.5 per cent showed relief of symptoms, increased mobility, and increased range of movement following radiation.

#### GOUTY ARTHRITIS—JOINT INVOLVEMENT

During the past five years we compared the use of ultrasonic radiation with conventional forms of therapy in the treatment of gouty arthritis. In our first few cases ultrasonic radiation was used alone. The results were encouraging, but more rapid improvement occurred when hydrocortone was used in combination with ultrasonic radiation. This combination therapy consisted of the injection of hydrocortone into the involved joint, followed by ultrasonic radiation. Not only did the acute local subjective and objective signs diminish, but the blood uric acid level also declined rapidly. Tophi, so common with chronic gouty arthritis, disappeared in a shorter time when ultrasonic radiation was used. In this group there were 38 cases in which 43 joints were involved. 91 per cent showed marked relief of symptoms, including subjective and objective clinical findings.

#### TEMPOMANDIBULAR ARTHRITIS

Ultrasonic radiation has proved to be very beneficial in treating tempomandibular arthritis. This pathology has shown marked resistance to the conventional type of therapy as well as to surgical intervention. Sonation is applied directly over the joint with frequencies of 3 megacycles per second, intensities of 0.2 to 0.8 w/cm<sup>2</sup>, and maximum duration of treatment being five minutes. There were 22 cases in this group of which 12 or 53 per cent showed remarkable results.

#### SUBDELTOID BURSITIS

About five years ago following the encouraging results we were obtaining in the use of ultrasonic therapy in spinal arthritis, we decided to institute ultrasonic radiation to a small controlled group of

patients with subdeltoid bursitis in order to compare this type of therapy with more conventional methods of treatment for this condition. The initial results in the first group of patients evaluated were so outstanding that at the present time in our clinic, the treatment of choice for bursitis, with or without calcareous deposits, is ultrasonic therapy.

In the treatment of subdeltoid bursitis the area to be radiated is divided into three zones; one, the cervical region; two, the suprascapular region; and three, the deltoid areas. Low intensities should be used, as high intensities in the majority of cases produce little beneficial effect, and may even aggravate the condition. Low intensities applied with good technique seldom create painful reactions. Although in our series the majority of patients obtained dramatic relief from pain, and experienced a steady increase in the range of motion in the shoulder, we still advised a program of home exercises designed to increase further the range of shoulder motion.

In the treatment of subdeltoid bursitis with calcareous deposits, stationary sonation was applied in addition to the gliding direct technique. The stationary transducer was applied directly over the area where the deposit occurred. With stationary application, both intensity and duration were greatly reduced, only 0.1 to 0.25 w/cm<sup>2</sup> being administered for a period of not more than two minutes.

In this group of bursitises, we had 1,115 cases of which 925 or 83 per cent showed relief of symptoms, decrease of spasm about the shoulder joint, and return to normal range of motion. The remaining 17 per cent showed some improvement with partial relief of their symptoms and an increase in the range of motion of the shoulder joint. In this group total relief was not noted, even after a second or third series of ultrasonic radiation. In the final evaluation of this group we found that the majority of cases obtaining poor results had their bursitis for over two years, and had a definite capsulitis as a residual of their original pathological condition.

#### TRAUMATIC CONDITIONS

##### EPICONDYLITIS

In 1953 we started our investigation into the clinical use of ultrasonic therapy

in epicondylitis. In considering ultrasonic radiation for this pathology we found that in the area of the lateral epicondyle we were able to break up the existing adhesions, absorb the granulation and fibrous tissue, exert localized thermal action, and increase intracellular metabolism. We also find that ultrasonic radiation results in the absorption of exudates and precipitates the breakdown of the tissue deposits. From the results we have obtained we feel that the hypertonicity of the extensor muscle groups decreases, intramuscular hyperemia is brought about, and local anesthesia occurs, resulting in a relief of pain. This group consisted of 182 cases of which 96 per cent showed complete relief of pain, increase of range of motion of the elbow joint, and return to normalcy of the extensor mechanism of the arm and hand.

#### MYOSITIS, FIBROSITIS, SPRAINS

In this group there were 350 cases of fibrositis, 263 cases of myositis, and 291 cases of sprains of the ankle, knee, and wrist. Ultrasonic radiation was beneficial in 93 per cent. The physiological, biochemical and mechanical properties of ultrasonics have been most helpful in these acute traumatic conditions and shorten the time of convalescence by at least 70 per cent.

#### MISCELLANEOUS CONDITIONS

During the past few years, we have experimented with ultrasonic radiation with various chronic conditions in which the usual type of treatment had not been entirely successful. In this group we had chronic dermatological conditions such as keloids, Dupuytren's contractures, chronic ulcers secondary to varicosities, amputation neuromas, and painful operative scars. Also included were acute Herpes Zoster, and acute and chronic sinusitis. In this entire group we had 253 cases: Keloids, 50 cases; Dupuytren's contractures, 33 cases; chronic ulcers, 17 cases; painful operative scars, 29 cases; amputation neuromas, 36 cases. In these dermatological conditions the best results were obtained with frequencies of 3 megacycles per second and low intensities ranging between 0.2 and 0.5 w/cm.<sup>2</sup>

In this group the best results were noted in the chronic ulcers. The next best results were with keloids, painful operative

scars, and amputation neuromas. The least good results were with Dupuytren's contractures. With the keloids, Dupuytren's contractures and chronic ulcers, many series of sonations had to be given with ten day's rest between each series.

#### HERPES ZOSTER

This series consisted of a total of 30 cases. The ophthalmic branch of the trigeminal nerve was involved in five of these. Four of the five were on the left side but it would appear that right and left sides were usually equally affected. Two cases involved the skin of the face, principally the cheek. Two further cases manifested themselves on the neck. We found the most common place for the Herpetic eruption to appear was in the thoracic lumbar area. In this area we had 18 cases. They were all unilateral and equally divided between the right and left side. Also in our series we had one case of the lumbosacral area and one of the sciatic area in the posterior part of the thigh. 89 per cent of all cases responded well to therapy and were symptom free on the conclusion of the treatment phase. If the condition in Herpes Zoster could be treated in the acute stages, results of ultrasonic radiation were spectacular.

#### SINUSITIS

During the past two years, we have used ultrasonic radiation in the treatment of acute and chronic sinusitis. The maxillary sinuses were the ones most predominant in our series. Prior to our considering ultrasonic therapy for this condition, the patient was examined by a rhinologist and x-rays of the involved sinuses as well as blood evaluations were taken. Frequencies of 3 megacycles were used with intensities ranging from 0.2 to 0.8 w/cm.<sup>2</sup>. The duration of treatment averaged five minutes over the affected sinuses, and was given daily until relief of symptoms. The average number of treatments for each case was eight therapy periods. In our series we have treated 58 cases with 85.6 per cent of these cases obtaining total relief of symptoms following ultrasonic radiation.

#### INTRA-ARTICULAR THERAPY

##### WITH HYDROCORTONE AND ULTRASONICS

With the introduction of hydrocortone acetate in clinical medicine we began an in-



vestigation into the use of this drug combined with ultrasonic therapy. In this dual approach to articular conditions we took into consideration the dispersion power of ultrasound. This group covered 501 cases with 653 joint involvements and covers the following pathological conditions: chronic bursitis of the shoulder joint with calcareous deposits and capsulitis; degenerative joint diseases; chronic periarthrititis of the shoulder joint; traumatic arthritis of the elbow joint; synovitis secondary to chronic rheumatoid arthritis; traumatic synovitis; gouty arthritis with secondary bony changes.

All injections were performed under aseptic conditions. A local anesthetic consisting of a sterile solution of procaine hydrochloride, 1 per cent was used prior to injection. Injections varied from 25 mg. to 100 mg. of hydrocortone acetate, or 1 cc. to 4 cc. of the drug (25 mg. per cc.). In this study after injection we applied ultrasonic radiation of 1 megacycle per second with an intensity range of 0.8 to 1.0 w/cm<sup>2</sup>. Usually the direct method was used, except for the feet and hands where the indirect or subaqueous method was necessary.

In severe cases the intra-articular injection accompanied by sonation was given daily for the first four applications, then ultrasonic application alone was given every other day. In the chronic cases, the intra-articular injections and sonations were given every other day for the first four applications, and then ultrasonics alone every other day until symptoms subsided and range of motion increased.

In this group our best results were obtained in chronic bursitis of the shoulder joint with calcareous deposits and capsulitis. 93 per cent of these cases showed persistent marked improvement. Our next best results occurred in patients having degenerative joint disease. 91 per cent of this group showed a level of marked improvement for at least 24 months following treatment. In the patients having synovitis secondary to chronic rheumatoid arthritis, we noted that 85 per cent had retained their level of marked improvement for at least eighteen months.

Our most rapid results were in traumatic synovitis. The objective signs of swelling, redness, warmth and painful mo-

tion subsided, on an average, within two hours after the first injection and sonation. In these cases, the majority needed only two injections and four ultrasonic treatments.

In our control series, we used a group of patients having similar pathological conditions. This group numbered 37 patients with 50 joint involvements. Intra-articular injections were given with the same techniques as in our regular series, only hydrocortone acetate was used alone. We found in this control study that our best results were with injections of 100 mg. every 36 hours for four injections. In statistically comparing the remission of symptoms in both the regular series and a control group, we found that when ultrasonics was used along with hydrocortone injections, 89 per cent of these cases retained a level of marked improvement for 18 months. The remaining 11 per cent treated retained their marked improvement plateau for 6 months, and then had regressed only to a level of 50 per cent or moderate improvement at the 18 month check-up. In the control group, which received hydrocortone alone, 90 per cent of the cases retained a level of moderate improvement for only 16 days, and the remaining 10 per cent showed regression after seven days.

In this three year study in the treatment of intra-articular pathology we have used this approach on 501 cases involving 653 joints. 93 per cent of the 501 cases had relief of symptoms and increased motion of the joints involved.

#### CONCLUSIONS

1. I have presented a brief history of ultrasonics, the production of ultrasonic radiation, the properties and effects of ultrasonic radiation, application of ultrasonic therapy, and the contraindications for ultrasonic radiation in medicine.

2. In the presentation of the indications for ultrasonics in medicine. I have reviewed our clinical studies in over 7,000 cases of various pathologies for which ultrasonics have been used, over 6,000 of which have been followed for an average of three years. This represents a total of 108,234 sonations with an overall improvement and relief of symptoms of the entire group of 79.9 per cent.

## INDICATIONS AND CONTRAINDICATIONS IN ULTRASONIC THERAPY

3. Although the most spectacular results were noted in epicondylitis, degenerative joint disease, bursitis, and acute traumatic conditions such as sprains and strains, our most encouraging overall results were in the chronic arthritic conditions of the spine with and without radiculitis.

4. The ultrasonic modality used most commonly during the seven year study was an ultrasonic generator having a frequency of 1 megacycle per second, a piezoelectric crystal surface of 5 sq. cm. in the head of the transducer, and an intensity range from 0.2 to 1.2 w/cm<sup>2</sup>. The total period for each sonation did not exceed twenty minutes. In both the indirect and direct methods, the sonations were given slowly using a spiral movement and covering a distance of 20 cm. in one minute. The coupling agent was either liquid petrolatum or water.

5. At the present time we recommend that intensities for ultrasonic therapy should be low, ranging from 0.5 to 0.8 w/cm<sup>2</sup>, and never exceeding 1.0 w/cm<sup>2</sup>, with a frequency of 1 megacycle, and a duration of from five to thirty minutes for each sonation.

6. In repeated blood, urine and x-ray examinations of the cases in this series there were no abnormal changes. In these cases we did not see any abnormal dermatological conditions following ultrasonic radiation. In acute rheumatoid or gouty conditions we have noted decrease of the high sedimentation rate, a lowering of the high white blood count, and a decrease in blood uric acid level following ultrasonic radiation.

7. From our seven year study, we feel that ultrasonic therapy is of definite value in clinical medicine.

### References

1. Van Went, Johanna: Ultrasonic and ultrashort waves in medicine, Elsevier Pub. Co. (1954).
2. Aldes, J. H.: Ultrasonic therapy in the treatment of hypertrophic arthritis in elderly patients, *Ann. of West. Med. & Surg.* (Sept., 1952.)
3. Silverman, Milton: Healing by high frequency, *Sat. Eve. Post.* Vol. 228, No. 3 (July 16, 1955).
4. Busnel, R. G.: Gligorijevic, J., Chauchard P., & Mazoue, H.: Contribution a l'etude des effets et des mecanismes d'action des ultrasons sur le systems neuromusculaire etc., *Ultraschall*, Vol. 6, No. 12 (1953).
5. Van Went, Johanna: Ultrasonic and ultrashort waves in medicine, Elsevier Pub. Co. Chapter 2, (1954).
6. Aldes, J. H., Jadeson, W. J.: The use of ultrasonic therapy in geriatrics, *Der Ultraschall*, Vol. 5, No. 3 (September 1952).
7. Pohlman, R.: Die ultraschall-therapie, Hans Huber, Bern (1951).
8. Stuhlfauth, K.: Neural effects of ultrasonic waves, *Brit. Jour. Phys. Med.* 15:10—14 (Jan. 1952).
9. Bergmann, L.: Der ultraschall and seine anwendung in wissenschaft und technik, S. Hierzel, Leipzig (1950).
10. Lehmann, J. F.: The biophysical mode of action of biologic and therapeutic ultrasonic reactions, *J. Acoustic Soc. America*, 25:17, (1953).
11. Woeber, K.: Progress in biologic and medical research, from International Congress, Rome 1950, Vol. 2. S. Hirzel, Stuttgart (1950). *Der Ultraschall*.
12. Hintelzmann, U.: Der ultraschall in der praxis, *Munchen med. Wochenschr.* 92:869—874, (Sept. 1, 1950).
13. Nelson, P. A., Herrick, J. F. and Drusen, F. H.: Ultrasonics in medicine, *Arch. Phys. Med.* 31:6—19 (Jan. 1950).
14. Ludwig, G. D. and Struthers, F. W.: Considerations underlying use of ultrasound to detect gallstones and foreign bodies in tissue, *Naval M. Research Inst. Proc. NM 004001*, Report 4, (June 16, 1949).
15. Krusen, F. H. and others: Present status of use of ultrasonic energy in physical medicine, *Jour. A.M.A.*, 148:646—651, (Feb. 23, 1952).
16. Gersten, J.: Effect of ultrasound on tendon extensibility, *Proc. 3rd Ann. Conf. American Institute of Ultrasonics in Med.*, (September 4, 1954).
17. Fry, W. J.: Neurosonic surgery, *Proc. 4th Ann. Conf. American Institute of Ultrasonics in Medicine*, (August 27, 1955).
18. Aldes, J. H.: Ultrasonics—a five year study, *Proc. 2nd. International Cong. Phys. Med.*, (in press) (1956).
19. Aldes, J. H.: Review of Ultrasonic therapy in 7,000 cases, *Proc. German Therapy Week*, 1956 (in press).
20. Aldes, J. H., Klaras, T.: The use of ultrasonic radiation in the treatment of subdeltoid bursitis with and without calcareous deposits, *West. Jour. of Surg.*, 62; 369-376, (July 1954).
21. Aldes, J. H.: Ultrasonic radiation in the treatment of epicondylitis, *GP*, Vol. 13, No. 6 (June 1956).
22. Aldes, J. H.: A new approach to the treatment of subdeltoid bursitis, *Proc. 2nd Ann. Conf. American Inst. of Ultrasonics in Med.*, (August 29, 1953).
23. Aldes, J. H.: Has ultrasound proved successful in clinical medicine? *Proc. 4th Ann. Conf.*



- American Inst. of Ultrasonics in Med., (August 27, 1955).
24. Aldes, J. H.: Use of ultrasonic therapy in athletic injuries, *The Mentor*, (December 1955).
  25. Stuhlfauth, K., Wuttge, K. H.: Beitrag zur klarung des wirkungs-mechanismus des ultraschalls am menschlichen gewebe, *Klin. Wochenschr.* 27:662, (1949) and 28:71—74 (Jan. 15, 1950).
  26. Nelson, P. A., Herrick, J. F., and Krusen, F. H.: Temperatures produced in bone marrow, bone and adjacent tissues by ultrasonic diathermy, *Arch. Phys., Med.*, 31:687—695 (Nov. 1950).
  27. Behrend, H. J., Weiss, J.: Ultrasonic therapy in geriatric practice, *Proc. 2nd Ann. Conf. American Inst. of Ultrasonics in Med.*, (August 29, 1953).
  28. Schwartz, F. F.: The value of ultrasonics in physical medicine, *Proc. 2nd Ann. Conf. American Inst. of Ultrasonics in Med.*, (Aug. 29, 1953).
  29. Kuitert, J. H.: Ultrasonic energy as an adjunct in the management of radiculitis and similar referred pain, *Proc. 2nd Ann. Conf., American Inst. of Ultrasonics in Med.*, (August 29, 1953).
  30. Rosenthal, H.: Ultrasonics in clinical medicine, *Jour. Aviation Med.*, 27:265—272 (June 1950).
  31. Bauer, A. W.: Technique of ultrasonic therapy, *Brit. Journ. Phys. Med.*, 14:145—149, (July 1951).
  32. Hueter, T. F. and Bolt, R. H.: Ultrasonic method for outlining cerebral ventricles, *Jour. Acoust. Soc. Amer.*, 23:160—167 (March 1951).
  33. Barth, G., and Bulow, H. A.: Zur frage der ultraschallschadigung jugendlicher knochen, *Strahlentherapie* 79:271—280 (1949).



## Perplexities of Chronic Relapsing Pancreatitis

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Chronic relapsing pancreatitis, now recognized as a disease entity, represents a severe form of chronic pancreatitis with recurrent exacerbations of upper abdominal pain separated by long or short periods of relative clinical quiescence. Although Fitz described chronic pancreatitis in 1889 (1), the relapsing form of the disease was not dignified as a separate clinical entity until 1946 when Comfort and his associates presented a study of 29 cases without associated disease of the biliary or gastrointestinal tract (2). Cattell and Warren (3) have emphasized that the recurrent episodes of abdominal pain, nausea, vomiting, bloating, food intolerance, diarrhea, constipation, weight loss, and perhaps jaundice and diabetes are but separate phases in a continuing pathologic process which may lead from acute pancreatic edema or necrosis to progressive fibrosis, atrophy and calcification.

Sufferers with the disease may be labeled neurotics, biliary dyskinesias, pep-

tic ulcers, pylorospasms, gastroenteritides, intestinal allergics, alcoholics, or narcotic addicts. Many have had appendectomies, cholecystectomies, choledochostomies, operations for freeing of adhesions, and repeated urinary tract investigations. They remain resistant to medical and surgical care until the true natures of their disorders are recognized and evaluated. Even then the pathologic changes—multiple, severe, progressive, and frequently obscure in origin—present a challenge that is always unusual and often appalling. The similarities in the pathology of chronic pancreatitis and carcinoma of the pancreas may confound the surgeon as well as the pathologist. Multiple avenues of surgical therapy have been followed.

### ETIOLOGY

Chronic relapsing pancreatitis has been reported at age 10 and at 75 years of age, the average age being about 50 years. In contrast to biliary tract disease, obesity is not a factor, and males are affected

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as often as females. The initial stages of the disease in many cases are characterized by one or more attacks of acute pancreatitis. In these cases the pathogenesis of the disease is assumed to be identical with that of acute pancreatitis. Reflux of bile into the main pancreatic duct with activation of trypsinogen and subsequent tissue autolysis is the time honored explanation for acute pancreatitis. Necessary accompaniments of bile reflux are: (1) a common channel between the terminal bile and pancreatic ducts, (2) an obstruction of the channel at the ampulla of Vater by muscle spasm, mucosal edema, stone, papillary stricture, tumor, duodenal diverticulum, or intestinal worm.

Evidence is accumulating to prove, however, that intrapancreatic obstruction, partial or complete, involving one or both of the main pancreatic ducts is the key to the problem of chronic relapsing pancreatitis. The pressure of secretions in the pancreatic ducts normally exceeds the pressure of the bile in the common duct and probably prevents the reflux of much bile into the pancreatic ducts. Any bile that does reflux into normal pancreatic ducts is rapidly flushed out. When partial obstruction of the pancreatic ducts develop, however, the secretory pressure in the pancreas is gradually lowered, and bile can reflux more easily in spite of the partial obstruction. Increased activation of trypsinogen in the pancreatic ducts, poor drainage of the resultant inflammatory material, and rapidly progressive vicious circle of vascular influences may then ensue. Causes for pancreatic duct obstruction may be: pressure from a gall stone, fibrosis, epithelial metaplasia, pancreatic calculi, tumor, duodenal mucosa edema, duodenal diverticulum, inflammatory swelling, trauma, and surgical ligature. Foley (3) reported a case of chronic relapsing pancreatitis that was relieved by dilating a stricture that had been produced by surgical ligation of the accessory pancreatic duct.

Many cases of chronic relapsing pancreatitis occur in the absence of discernible biliary or gastrointestinal disease. Coffey et al (1) found no biliary disease

in 50% of their cases. There is evidence that the pathology of pancreatitis may precede the development of biliary tract disease in many cases where both conditions are found to be present.

Other precipitating etiologic factors are: (1) infections in the biliary tree with secondary extension into the pancreas, (2) circulatory factors such as venous stasis, hypertensive apoplexy, thrombosis and embolism, (3) primary infections of the pancreas, (4) allergic episodes, (5) psychogenic stress with hyperactive vagus and resultant increased pancreatic secretion and spastic occlusion of pancreatic ducts, (6) reflux of duodenal contents into a partially obstructed accessory pancreatic duct.

Chronic alcoholism is a condition so closely associated with some cases of chronic relapsing pancreatitis that it has been accepted as a definite etiologic factor. The pancreatic involvement with chronic alcoholism is often a different pathologic process than the pancreatic disease related to gallstones. Cattell and Warren (3) in reviewing the literature found that from 32 to 47 per cent of the patients with chronic relapsing pancreatitis used alcohol to excess. They also found that when alcohol was involved, its abuse antedated the history of abdominal pain in most instances. Many patients with chronic relapsing pancreatitis, however, have not used alcohol in any form.

Dunphy (4) has stated that arteriosclerosis will produce a mild type of pancreatitis in older people but that it is occasionally fatal.

Perhaps the most disturbing form of relapsing pancreatitis is the one in which none of the aforementioned etiologic factors can be demonstrated. Dunphy (4) has used the term idiopathic pancreatitis which he believes is due to a metabolic deficiency disease and associated with abnormally viscid pancreatic secretions (mucoviscidosis).

#### SYMPTOMS AND SIGNS

All observers agree that abdominal pain is the most consistent and persistent symptom in chronic relapsing pancreatitis. The pain is essentially epigastric in location but may be girdle like passing around the trunk and radiating to



the back. It may be located under the costal margin to the right or left, around the umbilicus, directly below the umbilicus or on either side of the mid abdomen. It is usually a boring type pain, but it may be lancinating or colicky. Early in the disease it is episodic in character, occurring with greater intervals of freedom than is usually observed in biliary colic. It is aggravated by the ingestion of food and water and often occurs at night. Some patients seem to obtain partial relief from the pain by setting upright in a flexed position. Later in the disease the pain becomes more severe and lasts for hours, days, or weeks after which the patients may have a long or short symptom free period. Pain accounts for most of the patients becoming addicted to narcotics. The alcoholic patients often present an emotional instability that makes them suspects of becoming drug addicts even in the absence of the pancreatic pain. The ingestion of alcohol does seem to relieve the pain of the attacks temporarily; but together with repeated doses of narcotics, it aggravates a very difficult physical and emotional condition.

Varying degrees of upper abdominal tenderness may exist. Rarely does a palpable mass appear in the epigastrium.

Vomiting may or may not occur but nausea is frequently present. Partial duodenal obstruction may be an additional cause of vomiting later in the disease. A feeling of bloating may accompany the nausea and pain after eating. As the disease progresses, intermittent periods of diarrhea — really steatorrhea — develop due to the presence of fats and other foods that remain undigested when the pancreatic enzymes are excluded from the intestinal tract. Constipation on the other hand occurs frequently because of a diminished food intake, reduction of fats in the diet, and the increasing usage of narcotics.

Weight loss is the inexorable result of the bouts of diarrhea, anorexia, fear of eating because of pain, nausea, vomiting, alcoholic substitution for food and abstinence from fats.

Jaundice may develop because of actual biliary tract obstruction by the en-

larged head of the pancreas, or it may be caused by associated stones, papillary or duct stricture or spasm. Probably some cases of jaundice are due to hepatocellular damage.

Diabetes mellitus occurs late when the pancreatic fibrosis and calcification have encroached on the islets of langerhans. The diabetes tends to be mild and may not be recognized by urinalysis since the patient tends to have a high renal threshold for sugar. A glucose tolerance test should be done on all cases of chronic relapsing pancreatitis.

Warren's analysis of 87 cases with chronic relapsing pancreatitis (12) revealed abdominal pain in every instance, weight loss in 94 per cent of the cases, excessive use of alcohol in 56 per cent, excessive use of narcotics in 48 per cent, diabetes (usually mild) in 38 per cent, pancreatolithiasis in 41 per cent, pancreatic cysts in 25 per cent, and jaundice in 25 per cent of the cases.

Positive laboratory findings tend to be meager in the late stage of the disease. The serum amylase readings, elevated early in the progressive episodes, may remain normal even during painful exacerbations. Pancreatic stools will reveal fat and undigested meat fibers. X-ray findings of pancreatic calculi or calcified areas in the parenchyma are significant. Single stones and multiple faceted stones have been reported. Pancreatic stones have been counted from one to three hundred in number.

#### PATHOLOGY

The diffuse type of chronic pancreatitis has long been recognized by surgeons during operations for biliary tract disease. Occasionally an indurated and contracted pancreas is uncovered at surgery without there having been any history suggestive of acute attacks of pancreatic edema, hemorrhage, suppuration or necrosis.

With recurring acute and subacute attacks the pancreas becomes enlarged, firm, and somewhat pale in appearance. The limits of the gland are indistinct, and peripancreatic edema exists.

As the disease progresses, the pancreas becomes more indurated, more fixed to

the surrounding tissues and loses its limited mobility. It feels larger than it really is since the fibrosis extends outward and involves adjacent organs such as the stomach, duodenum, choledochus, portal vein, hepatic artery and splenic vessels. The surface of the pancreas appears pale grayish white, smooth and shiny in some areas, and frequently contains areas of fat necrosis. The head of the gland becomes quite large whereas the body and tail loses its angular edges to become rounded, contracted from top to bottom, and shortened.

Involvement of the superior mesenteric, splenic and portal veins by the fibrotic process may cause considerable portal hypertension. Engorgement may develop in all the veins that drain thru the pancreatic region.

The main pancreatic duct is usually dilated and often is partially obstructed near its opening into the ampulla or at its junction with the accessory pancreatic duct. Several points of partial obstruction may be present in both the main and accessory pancreatic ducts. These points of obstruction are frequently due to squamous metaplasia. Solitary or multiple turbid cysts may be seen and palpated. Localized abscesses may be present in or adjacent to the gland.

The cut surface of the gland is white, fibrotic, and gritty. It does not bleed as readily as the normal gland. Localized areas of inflammation, necrosis, and fibrosis may exist with relatively normal areas of pancreas intervening or the whole gland may be a solid fibrotic cord like mass. Calcified areas or intraductal stones may be palpable. The stones vary in size, shape and number. They form in the ducts. Even the tiny areas of calcification apparently form around niduses of cells, infected material, or inspissated mucus in the smaller ducts. The actual pathogenesis of pancreatolithiasis is unknown, but the precipitating factors appear to be obstruction, stagnation, infection, mucoviscidosis, fibrosis and autodigestion with fat necrosis.

Pathologic complications that may accompany or ensue as a result of chronic relapsing pancreatitis include diabetes

mellitus, pancreatic cysts, pancreatic abscess, local areas of hemorrhage, gastrointestinal hemorrhage, pancreato-intestinal fistulas, pulmonary tuberculosis, portal hypertension, mesenteric thrombosis, biliary cirrhosis, and carcinoma of the pancreas.

#### DIAGNOSIS

The diagnosis in chronic relapsing pancreatitis should be made early. One of the clinical difficulties is that the disease may be observed during one or more exacerbations of acute pancreatitis with the characteristic catastrophic onset and course of pain, shock, nausea and vomiting, low grade fever, distention and diffuse abdominal tenderness. The disease is then easily confused with acute cholecystitis, perforated peptic ulcer, kidney colic, acute coronary occlusion, mesenteric thrombosis, intestinal obstruction or even appendicitis. An elevated blood amylase study in such an early case will reveal the obstructive pancreatic nature of the disease, but will not shed light on the chronic recurrent aspects of the disease. Repeated extremely harmful acute episodes may be allowed to ensue before any adequate surgical attack on the pancreatic duct obstruction is attempted. Later the blood amylase readings do not rise even during exacerbations of pain.

The older cases have usually been x-rayed to rule out peptic ulcer, biliary tract disease, kidney colic and other common disorders. They have usually been operated on one or more times for gall bladder disease, appendicitis and perhaps adhesions without relief of their pain. These patients—often labeled as chronic alcoholics, drug addicts, post cholecystic syndromes, biliary dyskinesias or psychosomatics—should be investigated with the pancreas in mind and given surgical therapy if indicated.

The only physical finding in the later cases may be moderate deep epigastric tenderness and evidence of weight loss. X-ray evidence of pancreatic calcification is conclusive (Fig. 1). The clinical evidence of unrelenting abdominal pain may be the only positive indication that the surgeon has for exploring the abdomen to prove the diagnosis and treat the blocks that give complete relief of the





Fig. 1—Calcification in the head, body and tail of pancreas in a 32-year-old male with recurring bouts of severe abdominal pain. Note wire sutures in two incision sites.

pancreatic pathology. Splanchnic nerve pain may help determine the advisability for surgery. True pylorospasm, sprue, syphilitic crisis, true psychoneurosis, and carcinoma are other diseases that must be considered.

#### DIFFERENTIATION OF CHRONIC PANCREATITIS FROM CARCINOMA OF THE PANCREAS:

Observers of the two diseases are repeatedly appalled by the difficulties encountered in differentiating chronic relapsing pancreatitis from carcinoma of the pancreas. Clinically the diseases are often indistinguishable since both may present an intractable boring abdominal pain as the only characteristic feature. It is probable that the pain in both diseases is due to blockage of the pancreatic ducts. Both diseases may cause varying degrees of nausea, vomiting, food intolerance, bloating, weight loss, jaundice, diarrhea, constipation and narcotic addiction.

The carcinomatous pancreas may present gross pathologic changes that are identical with the fibrotic, indurated, cystic or calcified glands mentioned above.

In fact, carcinoma in the pancreatic or biliary ducts may produce varying degrees of chronic pancreatitis.

Biopsy of a suspected area of the firm, pale, fibrotic, enlarged pancreas may produce tissue that gives the microscopic appearance of carcinoma on frozen section but which is revealed by examination of the permanent sections to be segments of glandular and acinar tissue fragmented in the massive scar tissue. Conversely a large deep biopsy of a suspected gland may show only fibrotic, necrotic or inflammatory tissue while the carcinomatous process lies buried in deeper ducts or scar tissue. Biopsy should always be carried out, however, if there is any question of carcinoma.

Only careful attention to all details of the gross and microscopic changes by the surgeon and cytologist will suffice in making an accurate diagnosis in these two diseases.

#### TREATMENT

It can be assumed that patients suffering with chronic relapsing pancreatitis have failed to obtain relief from medical therapy. Many will have had repeated failures from inadequate surgical procedures. Many operations have been devised for treating the disease. Nearly all of the surgical procedures give some relief in some patients, and all of the procedures have failed to relieve some patients. Procedures to correct pancreatic duct obstruction and procedures to prevent further reflux of bile or duodenal secretions are important steps in any surgical approach to the problem of chronic relapsing pancreatitis. Accomplishing the above steps early offers the best chance of curing the disease. As the disease process advances to chronicity, however, the task becomes more and more difficult. Eventually the surgeon is beset with the decision of selecting one or more radical approaches to the pancreas without hoping to cure all the complications but merely to relieve the pain. The following operative procedures have been utilized with varying degrees of success:

- (1) Correction of biliary tract disease
- (2) Sphincterotomy
- (3) Dilatation of the pancreatic ducts
- (4) Drainage of pancreatic cysts



- (5) Removal of pancreatic stones
- (6) Transplantation of the pancreatic ducts
- (7) Ligation of the pancreatic ducts
- (8) Distal pancreatectomy
- (9) Pancreatoduodenectomy
- (10) Total pancreatectomy
- (11) Biliary intestinal anastomosis
- (12) Splanchnicectomy
- (13) Celiac ganglionectomy
- (14) Gastrointestinal diversion — with or without vagotomy

Cattell and Warren (3) (12) have classified the operations for chronic relapsing pancreatitis into: (1) indirect surgery that includes all biliary tract procedures, gastrointestinal diversions, and autonomic nerve interruptions and (2) direct procedures on the pancreas to include drainage of cysts, lithotomy, anastomosis of the ducts, transduodenal exploration and dilation of the pancreatic duct, and various degrees of pancreatic resection.

Clearing away all biliary tract disease by means of cholecystectomy, removal of common duct stones and perhaps dilation of the sphincter of Oddi has undoubtedly relieved the symptoms in any patients having early stages of pancreatitis. If there is no gross evidence of pancreatitis, the surgeon may be justified in going no further—unless the symptoms persist or recur.

If, however, there is any clinical or pathologic evidence that relapsing pancreatitis is beginning to develop, additional operative procedures should be carried out to improve pancreatic drainage and prevent any further damage to the pancreas and adjoining structures. Doubilet (7) in reporting on 375 sphincterotomies gives the indications for sphincterotomy as follows: (1) recurrent pancreatitis, (2) multiple or recurrent common duct stones and ampullary stones, (3) pseudocyst of the pancreas and pancreatic fistula, and (4) acute cholangitis. In his series the sphincter of Oddi was cut transduodenally 277 times and endocholedochally (from within the common bile duct) 98 times. Cattell (9) in discussing 104 cases of chronic relapsing pancreatitis reported 35 transduodenal sphincterotomies 25 of which also had dilations

of the main pancreatic duct. The pancreatic duct obstruction is often just beyond the ampulla but quite frequently lies 2 or 3 cms. beyond the opening of the ducts into the duodenum. In some cases the ductal obstruction is in the body or even the tail of the pancreas. If dilation of the obstructed portion of the pancreatic duct can be accomplished, very good results may ensue. Warren (12) reported that 16 of 20 patients treated by transduodenal dilatation have good or excellent results.

The advent of roentgen techniques for obtaining pancreatographic studies during the operation of transduodenal sphincterotomy has provided a great tool for the surgeon to explore the pancreas. Doubilet and Mulholland (7) have presented classic data on the techniques of operative cholangiography and operative pancreatography. They have shown the ease with which the main and accessory ducts can be cannulated. The radiographic study may give complete visualization of the main pancreatic duct. The presence of an accessory duct can be detected. Dilatation of the pancreatic duct



Fig. 2—Pancreatogram showing marked dilation and irregularity of the pancreatic duct with a constant area of stenosis immediately adjacent to the ampulla of Vater. Accessory pancreatic duct is visible.



can be demonstrated. Organic obstruction—partial or complete—due to stones, previous trauma, carcinoma, or fibrosis can be demonstrated. The presence of cysts or pseudocysts can be demonstrated. The degree and extend of acute inflammation can be detected. By employing pancreatography, the etiologic factors of the disease may be discerned and a principle of treatment to reestablish normal physiology may be obtained. (Fig. 2)

Doubilet and Mulholland (7) also have emphasized the values of cholangiographic studies in pancreatic disease. These values include visualization of stones in the ampulla of Vater, determining the degree of narrowing in the pancreatic and sphincteric portion of the common bile duct, and demonstrating the presence of a common bile and pancreatic duct passageway.

Warren (12) in discussing pancreatic duct dilations has pointed out that in at least one third of their cases examined transduodenally, the pancreatic ducts opened into the duodenum separately from the common ducts, thereby making sphincterotomy alone an inadequate therapeutic procedure. Occasionally the duct of Santorini is observed to constitute the major pancreatic duct and to be obstructed and causing symptoms. The accessory duct must then be dilated or treated by resection.

Drainage of inflammatory cysts is indicated if they cannot be decompressed by pancreatic duct dilation and probing. Secondary surgery is usually indicated when small cysts are drained. Large cysts are often best drained by anastomosing them directly to the stomach, duodenum or jejunum depending on which structure best fits the anastomosis.

Removal of pancreatic stones by dilation of the duct or by direct incision into the dilated duct is occasionally feasible. The end results may be very good. Unfortunately the pancreatic stones are usually multiple and are present in small as well as large ducts. A diffuse pancreatolithiasis is amenable only to total or partial pancreatectomy. In some cases the diffuse pancreatolithiasis does not seem to cause any trouble.

Transplantation of the pancreatic ducts in a chronic fibrotic gland is rarely a feasible procedure. Some authors report successful results from transplanting the duct end into the stomach, duodenum, or jejunum (12). Ligation of the pancreatic ducts as reported by Cannon (10) has not been widely utilized. The technique has some merit in that it is of a lesser magnitude and can sometimes be accomplished transduodenally. The rationale of the procedure is based on the premise that pancreatic duct ligation will result in destruction of the gland's exocrin activity and that the latter is responsible for the pain of chronic relapsing pancreatitis. Ligation of the pancreatic ducts abolishes all pancreatic digestive enzymes from the gastrointestinal tract.

Distal pancreatectomy with anastomosis of the distal end of the pancreatic stump or duct to the jejunum has theoretical merit if the pancreatic duct is obstructed near the head of the gland. Duval (9) reports good results in 17 of 19 cases treated by distal pancreatectomy and pancreaticojejunostomy. He emphasizes weight loss as an additional criterion for partial distal pancreaticojejunostomy. Distal pancreatectomy without anastomosis to the jejunum may relieve some patients of pain and may preserve enough of the islet tissue in the head of the pancreas to prevent severe diabetes.

Pancreatoduodenectomy, a massive operative procedure, is one of the most effective therapeutic procedures for treating far advanced chronic relapsing pancreatitis (3) (9) (12). It removes the point of ductal obstruction which is usually in the head of the pancreas and does away with all bile or duodenal reflux. The bile duct, pancreatic duct, and distal end of the stomach are anastomosed to the jejunum after the head of the pancreas and duodenum are removed. Cattell (9) reported that of his 20 patients treated by pancreatoduodenectomy 15 had satisfactory results. Five of his cases still had pain and needed a total pancreatectomy for relief. Extreme technical difficulties may be encountered in freeing the third portion of the duodenum and body of the pancreas from the superior mesenteric, portal, splenic and other anastomotic veins. Extensive fibrosis in the hepato-

duodenal ligament may encircle the hepatic artery and thereby make the separation of this artery from the head of the pancreas most hazardous. In cases that have had previous common duct explorations, the pericholedochal fibrosis may be so dense and extensive that the surgery of dissecting and anastomosing the duct becomes most tedious.

Total pancreatectomy is a formidable but occasionally justifiable procedure to relieve the pain of an intractable case of pancreatitis when all other efforts have failed (9). The patients become full blown diabetics in addition to severe dietetic cripples. Unless the patients have good intelligence and can afford or be afforded frequent medical check ups they are likely to die soon after surgery if not before.

Splanchnicectomy and celiac ganglionectomy are procedures that may relieve the pain of chronic relapsing pancreatitis. The procedure supposedly relieves spasm in the blood vessels and ducts of the pancreas. Celiac ganglionectomy helps prevent postganglionic nerve regeneration. An added physiologic response is increased blood supply to the pancreas. The operation is not as mutilating as pancreatectomy which leaves the patient a pancreatic cripple. Coffey et al (1) reported complete relief of pain in 9 of 13 patients treated by bilateral splanchnicectomy and celiac ganglionectomy. Two of their cases had pancreatic calcification. Warren (12) reported good results in three out of 9 cases treated by thoracolumbar sympathectomy. The results were poor in 4 cases and fair in 2.

Choledochojejunostomy en Roux-Y or end to end anastomosis between the common bile duct and jejunum eliminates any possibility of bile reflux into the pancreatic duct. Bowers (9) (11) has reported relief of pain and subsidence of attacks in 16 or 17 cases by the en Roux-Y procedure. He advocates using the procedure early in the development of the disease. Choledochojejunostomy is an accepted and useful procedure in the surgeon's armamentarium for combating this awful disease. Late in the disease after extensive pericholedochal fibrosis has developed, the en Roux-Y procedure can also be very hazardous.

Gastrojejunostomy or some other gastroenterostomy type procedure is occasionally utilized to relieve duodenal obstruction caused by a contracted and fibrotic pancreas. Such a diverting operation is not uncommonly utilized together with other surgical procedures on the pancreas and bile ducts. Vagotomy to control gastric motility and secretions as well as pancreatic secretions may also be utilized on occasion. The value of vagotomy is most equivocal in the late stage of the disease.

#### DISCUSSION AND CONCLUSIONS

This study of chronic relapsing pancreatitis is presented to emphasize the disease as an entity, to point out its progressive and variable character, and to encourage the use of adequate diagnostic and surgical procedures.

Evidence is accumulating to show that the chief etiologic factor is partial or complete blockage of one or both main pancreatic ducts. The many secondary etiologic factors have been discussed.

Heretofore most surgeons have been hesitant to make direct surgical attacks on the pancreas. By employing operative pancreatography and cholangiography, however, the surgeon now can demonstrate the etiologic and pathologic features of the disease. With such data he can establish a physiologic basis for opening the pancreatic ducts to secure free drainage and for preventing the reflux of bile and duodenal contents into the pancreatic ducts.

It is believed that early adequate surgery often will prevent the progression of the disease to the abscessed, cystic, fibrotic and calcified state where only massive surgical procedures will suffice for relief of pain.

Advanced stages of the disease probably will continue to appear in spite of added knowledge of the etiology, symptomatology, pathology, diagnosis, and surgical therapy. With advanced cases, however, the surgeon should consider and apply a variety of surgical maneuvers on an individualistic basis to offer these patients the best chance for relief. He should remember that nothing short of total pancreatectomy, which is rarely necessary or



justified, is likely to answer all the surgical requirements for treating this disease.

#### BIBLIOGRAPHY

- (1) Coffey, F. L., Woelfel, G. F., Kird, J. D., and Burdette, M. G.: Treatment of Chronic Relapsing Pancreatitis. *Am. Surg.* 21: 569-576 (June) 1955.
- (2) Comfort, M. W., Gambill, E. E., and Bagentross, A. H.: Chronic Relapsing Pancreatitis: study of 29 cases without associated disease of biliary or gastrointestinal tract. *Gastroenterology* 6: 239-285 (Apr.) 367-408 (May) 1946.
- (3) Cattell, R. B., and Warren, K. W.: *Surgery of the Pancreas*. W. B. Saunders Co., 1953.
- (4) Bowers, S. R., Jr., Brown, H. H., and Stein, A.: The Pathogenesis of Acute and Chronic Pancreatitis. *Ann. Surg.* 142: 690-697 (Oct.) 1955.
- (5) Foley, F. E., Kilpatrick, J. T., and Crabtree, S. F.: Chronic Recurrent Pancreatitis Due to Injury to the Duct of Santorini. *Ann. Surg.* 144: 87-92 (July) 1956.
- (6) Doubilet, H., and Mulholland, J. H.: Operative Contrast Visualization of Pancreatic Disease. *S. Clinic N. A.*: 385-403 (April) 1956.
- (7) Doubilet, Henry: Section of the Sphincter of Oddi. Principle and Technique. *Surg. Clin. N. A.*: 865-882 (Aug.) 1956.
- (8) Harper, Paul V.: The Diagnosis of Disease of the Pancreas. *S. Clin. N. A.*: 141-147 (Feb.) 1956.
- (9) Longmire, Wm. P., Jordan, P. H., and Briggs, J. D.: Experience with Resection of the Pancreas in the Treatment of Chronic Relapsing Pancreatitis. 144: 681-695 (Oct.) 1956.
- (10) Cannon, J. A.: Experiences with Ligation of the Pancreatic Ducts in the Treatment of Chronic Relapsing Pancreatitis. *A. J. Surg.* 90: 266-288 (Aug.) 1955.
- (11) Bowers, R. F.: Choledochojejunostomy—Its Ability to Control Chronic Recurring Pancreatitis. *Ann. Surg.* 147: 682-689 (Oct.) 1955.
- (12) Warren, K. W.: Surgical Considerations in the Management of Chronic Relapsing Pancreatitis. *Surg. Clin. N. A.*: 785-799 (June) 1955.
- (13) Warren, K. W., and Cattell, R. B.: Basic Technique in Pancreatic Surgery. *Surg. Clin. N. A.*: 707-724 (June) 1956.
- (14) Elliott, D. W.: Pancreatic Ductal Resistance in the Pathogenesis of Acute Pancreatitis. Address to Soc. of Uni. Surgeons, (Feb.) 1957.



## Advantages of Private Medical Care\*

JANE BRUCE\*\*

"Good health is something that every man, woman, and child has a right to have and to enjoy." Because of belief in this principle, America has become the healthiest large nation in the world. Within the last half century much progress has been made in the field of medicine in this country. Babies born today can expect to live at least twenty years longer than was possible fifty years ago. Typhoid fever, smallpox, diphtheria, pneumonia, and other dread diseases that were once killers have now been brought under control.

During the last fifty years, in a population which has more than doubled, the number of persons sixty-five years and

above has more than quadrupled. Because of increase in knowledge and medical facilities, American surgeons are now able to perform delicate life-saving operations which would have been impossible a few short years ago. An increase of about 30% during the last fifteen years in the efficiency of the average physician has come about through the use of new drugs and antibiotics, new or improved techniques, and better coordination of all medical facilities.

One reason for America's superiority in the realm of medicine is her high standard of medical education. All of the nation's medical schools are approved institutions which meet high requirements. These provide assurance that all graduates are qualified and well trained for be-

\*Second place in the final judging of the 1957 AAPS Essay Contest.

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coming doctors. A growing emphasis has been placed on postgraduate study and refresher courses to keep physicians informed of medical progress. American physicians are offered the most complete postgraduate study opportunities in the world.

Another reason for the general good health of America is her rapidly increasing supply of doctors. We in the United States have more doctors than any other nation, and we have more in proportion to population than any other country except Israel where there are many refugee physicians from Europe. During the past twenty years the number of physicians has increased more rapidly than the general population. It has been estimated that the period of 1950-1960 will bring an increase of about thirty per cent in the supply of doctors.

Recent surveys prove that the cost of medical care presents no great problem to the majority of American families. Medical costs, like all other costs, have risen in the past few years. Statistics show a 90.8% increase of living costs since 1935-1939, while the increase of medical costs was only 65.5%. Between 1935-1939 and 1950 average weekly wages increased 165%, while doctors' fees increased only 48%. Today the average person works only three-fifths as long to pay for the same amount of medical care.

Hospital stays and wage losses have been greatly reduced by new techniques and new drugs which enable physicians to shorten length of illness. For this reason the total medical bill is often less than it was fifteen years ago. A survey conducted by the Federal Reserve Board shows that of about 53,000,000 American families, well over 80%, reported no medical debts at all. Less than 30% of all families in the survey actually needed financial assistance to pay their medical bills.

Under our present system medical care is provided for all regardless of ability to pay. The physician has been called upon to give medical service to the indigent without compensation since time began. A certain amount of his valuable time is spent by every doctor in dispensing free

medical care. We have many free clinics in which those who are unable to pay may receive free medical service. These clinics are often supported by state and local funds.

Our system of private medical care is advantageous both to physician and to patient. The physician is free to choose when and where he will practice. He is able to select his own field and specialize if he pleases. Success is entirely up to him; therefore he does his best. Competition inspires him with energy and zeal, and as a result his patients receive the best of service. The patient, too, has freedom of choice in selecting his own doctor. He can discuss his personal problems freely with his own family doctor and know that his doctor has his best interests at heart.

Socializing our medical system would be disastrous to the quality of medical care as well as contrary to the principles of the American free enterprise system. There would be a tendency to standardize treatment and patients would be handled in the mass. Incentives to do good work would be removed and competition would be lacking. The personal relation between doctor and patient would be destroyed. All this would discourage the best young men from entering the field of medicine, and there would soon be a shortage of doctors. "When the government is given authority to tell one group or profession where and how its members are to work, no other group can be safe for long."

The system of socialized medicine in England has not succeeded from the standpoint of greater economy or of a higher grade of medical care. When the British National Health Service was established in 1948, the estimate of medical expenditures was 156 million pounds (436.8 million dollars.) In three years these expenditures had increased to over 400 million pounds (\$1,120,000,000). The cost of the ambulance service increased from \$11,200,655 in 1951-1952 to \$14,825,479 in 1954-1955. Today hospital costs alone average about one billion dollars per annum.

There has not been a great improvement in the quality of medical care in England under the present system be-



cause of the shortage of trained doctors and nurses. A single doctor has been assigned as many as 3,000 to 4,000 patients. Often a doctor does not spend more than three or four minutes with each. In this short time it is not possible to examine and care for a patient properly. The shortage of trained nurses is so great that it may become necessary for young women to be drafted into the medical profession. Already the National Health Service is preparing to pay men and women equal salaries in order to interest more women in entering the medical field. There is a particularly great shortage of dentists. A recent survey shows that children entering school at the age of five had an average of five teeth missing, decayed, or filled; and that sixty-seven per cent of all children up to fourteen years did not go to a dentist in any given year. The need of dentists is so great that having oral hygienists fill and extract the teeth of school children has been considered by the National Health Service.

Another reason medical care in England is not satisfactory is because of the lack of proper facilities. The number of hospitals is inadequate, and the wards are so often filled with people who do not actually need the special care that it is difficult for doctors to get patients who sorely need treatment into the hospitals. There is a definite shortage of private beds in the hospitals. As a whole the government controlled medical care in England is scarcely adequate.

Under her system of private medical care, America is now offering her people

better health than ever before. Because of this system America has become the healthiest large nation in the world. Only under her present system can this country continue to maintain her superiority in the field of medicine. Through the readily available facilities of private medical care, America is now able to give her people hopes for happier, healthier, longer, lives.

And perhaps most important—the freedom to choose our own (private) physician is an integral part of our democratic way of life!

## BIBLIOGRAPHY

### Books

- Buehler, E. C.: *Free Medical Care*. New York City. Noble and Noble, 1935. Pp. 26-36.
- Johnsen, Julia E.: *The Reference Shelf. "Socialization of Medicine,"* New York. H. W. Wilson, 1935. Pp. 28-40.

### Magazines

- Magnuson, Dr. Paul B.: "Socialized Medicine vs. Organized Medicine for U. S." *U. S. News and World Report*, July 3, 1953. Pp. 36-51.
- "Foreign Letters" (United Kingdom). *Journal of the American Medical Association*. December 17, 1955; February 11, 1956; March 10, 1956; April 21, 1956; April 28, 1956.
- "Medical Care For All." *Science News Letter*, January 1, 1949.

### Pamphlets

- Hutcheson, William L.: "Socialized Medicine Is No Bargain," Chicago. National Education Campaign, American Medical Association.
- Martin, Walter B.: "Our Positive Program," New York. Committee on Interstate and Foreign Commerce, House of Representatives, January 28, 1954.



# ◆ What's NEW ◆

## Neurosurgery

FRANK T. PADBERG, M. D.\*

Cordotomy—the incision into the spinal cord and the interruption of the fiber tracts within the spinal cord has recently received revived and expanded usage. This operative procedure, the separation of the fibers of the lateral spinothalamic tract in the anterior quadrants of the spinal cord, has been carried out for the relief of pain. The use of this operation in the high cervical spinal cord and medulla for unilateral arm and shoulder pain has proved gratifying. Utilizing this high level for spinal cord incision has given wider areas of sensory loss and frequently more permanent sensory loss than is obtained with a high thoracic cordotomy. The operation is more difficult, carries greater operative risk for morbidity and mortality than when it is performed at the thoracic cord level. Pain relief is good and in general, patients are less disabled after a high cervical cordotomy than after rhizotomy of the involved cervical posterior roots with or without thoracic cordotomy. Cervical cordotomy is not justified for patients with lower extremity pain when a bilateral upper thoracic cordotomy can be performed with good results. Patients with cervical and thoracic pain levels as in those patients with metastatic chest tumors are candidates for cervical cordotomy. This surgical procedure has filled a gap in neurosurgical treatment—patients with high thoracic and cervical pain can now have pain relief without the pronounced sensory deficit which accompanied cervical posterior rhizotomy. In addition, cervical cordotomy has erased, by this, one indication for prefrontal lobotomy.

Thrombosis of the internal carotid arteries has been more frequently recognized in the past few years. This entity presents a distressing situation occurring in

a wide range of age groups. Clinicians are recognizing that this disease has many neurological manifestations varying from vertigo, vague parasthesias, mild speech disturbances, to a profound hemiplegia. A thrombosis has frequently been discovered in the study of carotid angiograms of patients having symptoms and signs of cerebrovascular disease and/or brain tumor. This distressing neurological deficit is commonly associated with arteriosclerosis. The pathological lesions vary from partial to complete occlusion of the vessels. The presenting symptoms depend upon this as well as upon the amount of anastomatic supply to the cerebral vessels from branches of the external carotid artery and/or the circle of Willis.

Partial internal carotid artery occlusions are usually located at the beginning of the internal carotid artery as it leaves the carotid bulb. The clinical features of an incomplete occlusion is observed in patients with a complexity of symptoms commonly described as light strokes or spasm of the cerebral vessels. An incomplete internal carotid artery occlusion results in a reduced cerebral blood flow of varying severity and duration. This may result in varying degrees of brain edema and associated vessel thrombosis. Such an occlusive effect may result in partial and constrictive lesions of the carotid or its branches with an associated atherosclerosis and arteriosclerosis.

In complete carotid artery obstruction, acute hemiplegic syndromes have occurred in some patients and only minor symptoms and signs in others. The majority of patients have had a progressive course of recurring pains or paralysis of the arm, leg, or both. Palpation of the carotid artery for pulsation does not reveal the diagnosis particularly when the internal carotid is alone involved. Carotid angiog-

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raphy is used to confirm the diagnosis. The presence of a major vessel thrombosis may indicate the use of anticoagulants which should be used, however, only under very close and careful supervision. Some patients with an intermittent insufficiency of the carotid or basilar arteries, seem to do well on anticoagulant therapy. The use of anticoagulants basically depends upon the ability, when confronted by these lesions, to distinguish between an infarction and an intracerebral hemorrhage. In addition to the anticoagulants, inhalation of carbon dioxide and intravenous papaverine may be of benefit. These suggestions for treatment are in need of further supervised study. Some very gratifying results have been obtained using anticoagulants and vasodilators in combination in patients with cerebral arteriosclerosis.

Grafting procedures, thrombectomy, and thromboendartectomy have been, as yet, infrequently employed and with uncertain results. These surgical procedures have been infrequently reported to date. There is marked variability in the reported results and very little standardization of procedure has been reached. The excision of the totally occluded internal carotid artery in patients who have had repeated attacks of cerebrovascular insults, may prove to be of help in eliminating further attacks by possibly preventing an embolism from the upper end of the thrombus.

Bilateral carotid artery obstruction is known. The principal clinical finding is a progressive dementia. Bilateral partial occlusion may be found in patients with various findings including mental changes and progressive motor changes.

Any pathological process affecting an intact carotid when the opposite carotid artery has been involved by one of these aforementioned processes could be disastrous since only one intact vessel would be giving a vital blood supply. As a test, digital compression of the carotid opposite to that involved may frequently result in syncope. If so, the suspected involved vessel should be considered for demonstration by angiography to determine the extent of a pathological involvement.

Parkinson's disease and other hyperkinetic diseases have recently been surgically treated with some reports of very excellent results. Various means of surgical attack have been employed. The simplest is the production of a destructive lesion in the globus pallidus of the basal ganglia. This has been done with absolute alcohol and by electrocoagulation after a previous novocaine block of this nerve tissue. These surgical procedures are not being performed in all localities. The results from these procedures are encouraging but the follow-up studies of operative patients have not been carried long enough for long term evaluation of the results. Patients suffering from Parkinson's disease have long been in need of additional means for active treatment. At present, the patients suffering from this disease should have the benefit of a complete trial at medical treatment and management. Only with the failure of this, should they be considered candidates for a *trial* at surgical treatment. Perhaps the ideal patient for surgery would be a patient with predominantly unilateral involvement and with failure of energetic medical management. These surgical treatments have an associated mortality and morbidity. In addition to the chemical and electrocoagulation lesions, vascular occlusion of the anterior choroidal artery has been performed. This latter procedure is a major surgical experience and has been recommended for young patients suffering from post-encephalitic Parkinsonism which has not responded to medical management. In recent months many popular magazines have carried articles referring to the surgical treatments for Parkinson's disease. Three considerations for patients considered for surgical treatment are:

1. Any surgical attack for Parkinson's disease should only be undertaken after failure of a concentrated energetic medical program.
2. Surgery for this disease does not restore normalcy to the affected extremities but reports do indicate some excellent improvements with *partial* alleviation of the symptoms.
3. Surgical treatment for patients with these symptoms depends upon the

destruction of a nerve center in the central portion of the brain.

There is at present, no "cure" for Parkinson's disease. Surgical treatment is

considered only for those patients with a moderately advanced state of disease who have not benefited with medical management.

**A TEACHING SEMINAR**

**FROM THE**

**UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE**

# Hemolytic Disease of the Newborn

*(Erythroblastosis Fetalis)*

KERMIT E. KRANTZ, M. D.\*

Approximately ten per cent of the cause of dead born infants can be attributed to "erythroblastosis fetalis." An occurrence of approximately 1 out of 150 to 1-200 of all full term pregnancies. Though to most physicians and layman alike the term "erythroblastosis fetalis" has become synonymous with "Rh" incompatibility, other entities have been found to display a similar clinical picture. In order to include all causes of neonatal jaundice attributable to blood specific antigen antibodies the following definition has been made.

Hemolytic disease of the newborn (erythroblastosis fetalis) means the hemolytic anemia and associated phenomena which occur in the fetus as a result of transfer across the placental barrier of an antibody incompatible with the fetal red cells. At present the term must include all cases where antibody can be demonstrated to have united with the fetal red cells with or without resulting hemolysis.

**GENETIC CONSIDERATIONS**

A great deal of work has been done since the original report of Levine and Stetson demonstrating a dominant agglutinable factor in the infant inherited from the father and capable of iso-immunization through transplacental passage. Landsteiner and Wiener through further

investigations on human blood with an anti-rhesus serum from rabbits found that another true blood factor was present. This was named Rh for rhesus. Through the work of others this fact became confirmed though originally and until recently, hemolytic disease in the newborn was thought to be mainly due to Rh incompatibilities, other lesser subgroups as well as the major group (A-B-O) have come to play a significant roll.

At the present time there are two distinct theories as to the method of genetic transfer of the Rh phenomena with thirty-six possible combinations described. However, a basic group of six compose over 99% of the problems seen.

Figure 1. Six Basic Rh-Hr Sera

Fisher-Race	Wiener	Percent Positive	Percent Negative
anti D	anti Rh <sub>0</sub>	85%	15%
anti d	anti Hr <sub>0</sub>	63%	37%
anti C	anti rh'	70%	30%
anti c	anti hr'	80%	20%
anti E	anti rh''	30%	70%
anti e	anti hr''	97%	3%

This basic group of six factors are referred to as the Rh-Hr system has been described by investigators here and in England. Two distinct theories as to mode of genetic transfer are held at present: (1) the Linkage (Fisher-Rose); and, (2) the multiple allele (Wiener).


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1. Boger, W. P.; Strickland, C. S. and Gylfe, J. M.: *Antibiot. Med. & Clin. Ther.* 3:378 (Nov.) 1956.

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Though it is not in the scope of this paper to discuss in detail the merit of these theories, it may be said each in its own way adequately explains the phenomena of transfer. As a result of these two theories, two separate systems of nomenclature describing the blood groupings involved has arisen. The six basic Rh-Hr sera can be listed as seen in figure 1. In approximately 95% of the cases of Rh incompatibility D (Rho) is found to be involved. Though and C (rh') frequently accompanies the production of D antibodies it in itself only occasionally is responsible for the disease. The others only occasionally are responsible for the disease. Though these six basic groups comprise at present the greater number of reported cases of hemolytic disease it should be remembered that A-B-O, incompatibility is now being found to play a more significant role than here-to-fore believed. Such groups as Kk (Kell "family") M; Ss (M-n-s "family") JK<sup>a</sup> (Kidd "family"); and Fy<sup>a</sup> (Duffy "family") though occur have but a minor role in incidence.

According to most observers, there is a distinct racial incidence of the disease (D-Rh). In the white population 85% are Rh+ while 15% are Rh negative; Negro — 93% are Rh+ and 7% Rh negative; and, in the Chinese 99% are Rh+ and 1% Rh negative. According to Potter the highest incidence of erythroblastosis occurs in 2.1% whites; 7% in Negroes and only rarely in Chinese. No figures comparing A-B-O incompatibilities in the race groups are available at this time.

#### METHODS OF IMMUNIZATION

There are two main methods by which immunization to Rh and A-B-O groups occur. Transplacental and through previous immunization. Though both involve the placenta, it has been found that individuals previously sensitized by transfusion or intramuscular injection of incompatible blood have the most severe cases of the disease. The reason for such is apparent in that the mechanism for antigen-antibody response has been well established prior to pregnancy. It is in this group that "erythroblastosis" is seen in the first pregnancy. Placental breaks with introduction of fetal cells into the maternal circulation is a natural phe-

nomena in the growth and aging of the normal placenta. Though these breaks are minimal in number and the amount of fetal cells introduced into the maternal circulation limited, sufficient cells are introduced to provoke an antigen-antibody response in the host. This of course can only occur when a demonstrable incompatibility between the fetal erythrocytes and the maternal host are present. Apparently in the first pregnancy of a non-sensitized mother the period of time in conjunction with the amount of antigen (fetal red cells) introduced into the host are not sufficiently great enough to build a high and active enough titer of antibody to cause sufficient enough damage to the infant to result in the disease. On the other hand in subsequent pregnancies or where previous immunization has occurred, the mechanism is well established and only needs provoking to develop sufficient antibodies. The other factor might be in the low antigenicity of the Rh factors in stimulating the reticuloendothelial system to antibody production. It is a well established fact that the antibody is of sufficiently small enough molecular size to pass the placental barrier with ease. It should be pointed out that Rh positive women can deliver erythroblastotic infants. This has been seen in those immunized by transfusions to the C (hr'') and E (rh'') factors as well as in A-B-O incompatibility.

#### PATHOLOGY

The effects of the disease are almost entirely limited to the infant though there has been evidence to suggest that increased there is a frequency of postpartum hemorrhage in mothers with erythroblastotic infants. It is obvious that transfusing the sensitized Rh negative mother with Rh positive blood would bring on a severe transfusion reaction.

Post-mortem examination of the infants fatally involved reveals several interesting findings. The work of Potter, Pickles and Gilmour has been outstanding in this direction. The following are part of the more significant observations that have been made. A severe anemia with hemoglobin frequently below 5 grams. Hepato and splenomegaly areas of extra medullary hemapoiesis in the liv-

er, spleen, kidneys, lungs, placenta, adrenals and other organs is present. Fibrous and biliary obstruction due to bile thrombin are evident. All membranes and organs appear pale but not jaundiced if the infant dies prior to birth or within a very few hours following parturition. Usually these infants in addition demonstrate a generalized anasarca (hydrops foetalis). This edema is even evident in the placenta. In addition, these infants (hydrops foetalis) have large numbers of persistent cytotrophoblast (Langhan's) cells in the placenta, as well as hyperplasia of the islet cells (Langerhan's) in the pancreas, lipid infiltration of the adrenal cortex, general atrophy of lymphatic tissue and thickening of the epiphyses and cortex of the long bones. If death has occurred in utero various stages of maceration may be evident.

In those infants that die in from 3-5 days (icterus gravis) postpartum the most characteristic features are as follows: jaundice of the skin and all organs. Evidence of hyperbilirubinemia and Kernicterus (hyperbilirubinemia with concurrent neuronal change) are present. Petechial and even frank hemorrhages may be seen in the lungs and other viscera. Few areas of hemapoiesis are evident in the liver revealing fibrosis and obstruction due to many bile thrombi.

It is then apparent that jaundice and Kernicterus are never evident until the infant is born and survived a period long enough to allow hyperbilirubinemia to occur. Though there are other causes for jaundice in the newborn, Rh and blood incompatibilities are the most frequent encountered and occur much earlier than the other known conditions. It is generally felt that the infant does not die from the anoxia due to low hemoglobin but rather from impaired hepatic function and neuronal damage from Kernicteous.

#### DIAGNOSIS AND MANAGEMENT

Because of the frequency of the disease, and the high mortality and morbidity in those untreated, it is necessary to make early diagnosis and institute therapy to obtain good results. At present the emphasis has been placed on recognition of the problem and then secondarily treat-

ing the infant. All patients should be seen in their first trimester of pregnancy. At the first visit blood should be drawn for blood group (A, B, AB, O) as well as Rh type and for D<sup>u</sup>. These patients (D<sup>u</sup>) a result of mutations of D (Rho) gene should not be on Rh negative donor lists for it has been shown that D<sup>u</sup> positive blood may immunize the Rh negative patient resulting in formation of anti D (antiRho) antibodies. In major blood type incompatibilities, it should be remembered that A occurs about 18% and B 7% of the time. Whereas, (Rho) D only 8% of the time. It should further be remembered that the hemolytic disease in A and B incompatibilities occur in 1% of all newborn infants while Rh in about 5% of all newborn. On the other hand the severity of the disease is greater in Rh than in A-B-O incompatibility. If the Rh is negative and the history of blood transfusion or injection is negative and the patient is in her first pregnancy nothing further is necessary in this pregnancy other than obtaining the Rh and typing on the cord blood and checking the mother at six weeks postpartum for residual titer if the infant is Rh positive. If the history is positive or there has been a previous pregnancy with or without sequelae, the blood group and the genotype of the husband and surviving children should be obtained. If the husband's genotype is positive, the patient should then be checked for Rh titer.

The Rh titer should be repeated at 30, 34 and again at 36 weeks. Frequent titers have been found to be no more prognostic than those obtained as previously stated. It is evident that one does not want to complicate the invaluable infant by adding premature delivery due to induction of labor prior to term. It has been shown that the titer alone is not as significant as a rising titer in conjunction with a given period of the pregnancy, the longer the titer the greater damage. In recent years many substances have been employed as haptenes with the hope that they may prove successful. At this time it can be said none have proved to be clinically of importance. ACTH and Cortisone have not been shown to appreciably alter the disease. Therefore, it revolves



about early recognition and prompt institution of therapy in the infant to prevent Kernicterus is the only salvation at this time. Early induction of labor has been found to be without advantage, in fact the incidence of Kernicterus is greater in premature infants than in those born after 37 weeks. However, in view of hydrops fetalis (rarely occurs before 36 weeks) induction of labor at or after the 37th week may be necessary. In general the infant at 37 weeks will weigh more than 2500 grams (5 lbs. 8 oz). The onset of hydrops fetalis can be detected by x-ray of the infant at 37 weeks. The presence of the "halo sign" or translucent area about the head of greater than 5 mm denotes edema. Prompt termination of the pregnancy should be considered if a viable infant is hoped to be achieved. In the same x-ray the presence of the distal-femoral epiphysis will generally denote a term infant. The method of delivery should be that which is most physiological and uncomplicated. Induction by simple medical (pitocin) and surgical means (rupture of the membrane) will usually suffice especially in the multiparas. Prolonged second stage and precipitate as well as prolonged labors are to be avoided. The administration of 72 mgm of vitamin K to the mother during labor or if possible six hours or more prior to delivery may aid appreciably in reducing hemorrhagic problems in these infants.

General anesthesia, as well as heavy sedation should be avoided. Trauma and handling of the infant should be minimized. The infant should be placed promptly in an incubator, kept warm, high humidity and given adequate oxygen.

At birth the laboratory and exchange team should be alerted. The infant's umbilical cord should be left at least 5 cm in length and wrapped with sterile saline sponges. Cord blood should be drawn as follows: Two tubes of cord blood one containing 10 cc of blood with oxalate and one containing 10 cc of blood to be allowed to clot. The latter for Coombs, Rh and typing and serum bilirubin. The former for red blood count, hemoglobin and smear. The blood type and Rh will reveal the possible source of incompatibility and the Coombs test if positive the presence of Rh antibodies from the moth-

er in the infant's system. The Coombs test will be negative in the A-B-O incompatible problems. The red blood count in a normal healthy newborn may be as high as 5.5 million. If the count is 3.5 million or less one must seriously suspect hemolytic disease in the infant. The normal hemoglobin is 18-19 grams. Hemoglobin levels below 15 grams are indicative of severe anemia. There is approximately a 2 gram higher reading in hemoglobin values on heel puncture than on venous samples. In the normal infant the nucleated red cells are seldom above 8-20 per 100 wbc counted, in hemolytic disease, they will usually be above 40. The serum bilirubin in normal new borns is rarely over 5 mgm.%. If the serum bilirubin exceeds 20 mgm.% the infant is suffering a severe hemolysis of its red blood cells. In evaluating the infant for exchange transfusion one should take in consideration the previous discussed laboratory findings and in addition the clinical picture of the infant. Any hemoglobin beneath 14.5 grams and a serum bilirubin above 20 mgm.% are indicative of need for the replacement transfusion. In general when in doubt the procedure should be carried out. The best prognostic index for repeating the replacement transfusion is persistent elevation of the serum bilirubin. There is no longer any doubt that the benefits of replacement transfusion are paramount to the success in the treatment of hemolytic disease in the newborn. The benefits of replacement transfusion are: firstly the removal of the sensitized fetal red cells and with them a large volume of bilirubin; and secondly, replacement of the infants cells with erythrocytes that are not sensitive to the antibodies. This affords the infant a source of erythrocytes of normal survival time to give adequate oxygen carrying capacity to its blood. The procedure also served to remove toxic substances and to remove the overt stimulus to the hemopoietic system of the infant.

#### THE REPLACEMENT TRANSFUSION

Since Hart carried out the first successful replacement transfusion a great deal has been learned. The preferential site for the replacement transfusion is through the umbilical vein. We have



found the umbilical vein to remain open for as long as seven days post-partum.

In order to simplify the procedure and better understand the umbilicus, its vein and related structures a series of anatomical dissections and injection studies were made. Figure 2 and 3 demonstrate the relationships between the umbilical—vein, the liver, ductus venosus and the inferior vena cava. Several interesting points are revealed in these injections and dissection studies. At the umbilicus—there is an angulation of the umbilical vein which after birth acts like a valve. The umbilical vein (later ligamentum teres) courses parallel to the abdominal wall in the falciform ligament to just beneath the inferior margin of the right lobe of the liver where it enters directly into the liver substance, figure 4. Within the liver at the umbilical sinus, there are branches into each hepatic lobe. The branch into the left lobe is joined by the portal vein. Originating at umbilical sinus is the ductus venosum (ligamentum venosum in the adult) which joins the inferior vena cava at the same site as the hepatic veins. In the ductus at its origin at the umbilical sinus a fold of tissue exists which acts like a valve, figure 5. In the introduction of the catheter into the infant, it becomes necessary

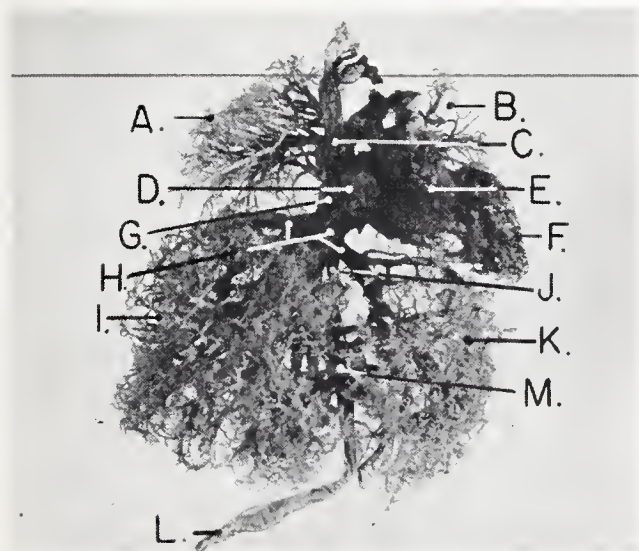


Figure 2. Injection-Corrosion preparation of newborn demonstrating the vascular relationships of the umbilical vein: A. right lung; B. left lung; C. superior vena cava; D. right atrium; E. left ventricle; F. right ventricle; G. inferior vena cava; H. hepatic veins; I. right lobe of the liver; J. ductus venosus; K. left lobe of the liver; L. umbilical vein; M. umbilical sinus.

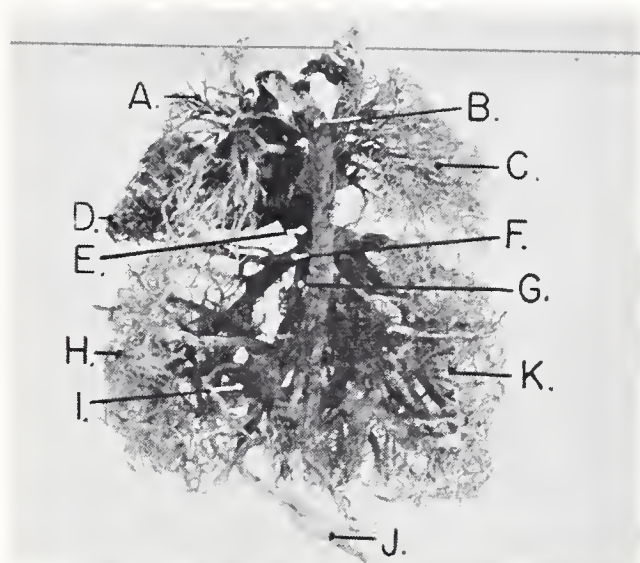


Figure 3. Posterior view of Injection-Corrosion Specimen demonstrating the vascular relationships of the umbilical vein: A. left lung; B. aorta; C. right lung; D. right ventricle; E. inferior vena cava; F. left hepatic vein; G. ductus venosus; H. left lobe of the liver; I. umbilical sinus; J. umbilical vein; K. right lobe of the liver.

through touch and movement of the catheter, to be able to identify these landmarks in properly locating the catheter. It has been found that introducing a grooved director (similar to that used in

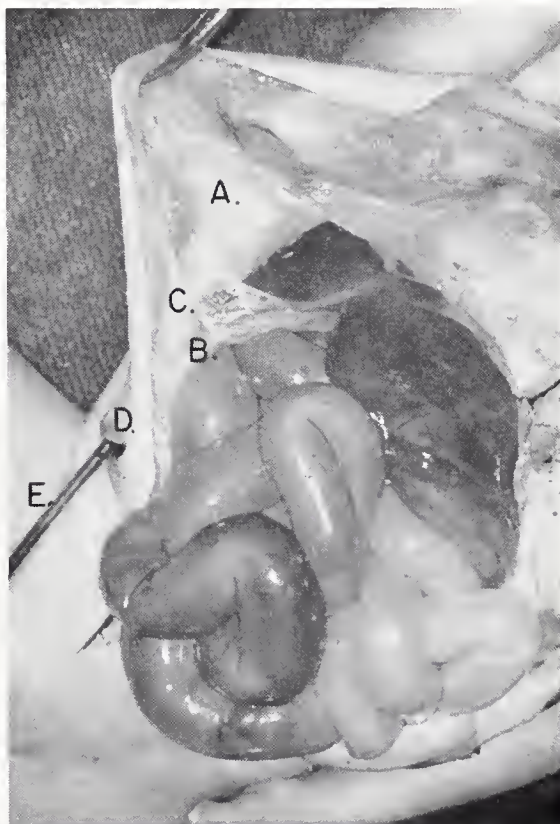


Figure 4. Dissection of the newborn demonstrating the: A. abdominal wall; B. umbilical vein; C. falciform ligament; D. umbilicus; E. catheter in the umbilical vein.





Figure 5. Dissected Viscera demonstrating the catheter in place: A. catheter at umbilicus; B. umbilical vein; C. umbilical sinus (note hepatic veins); D. origin of ductus venosus and valve; E. left hepatic vein and portal vein; F. inferior vena cava; G. right lobe of the liver; H. heart; I. stomach.

circumcision) parallel to the abdomen of the infant, through the umbilicus up the umbilical vein into the umbilical sinus and just beyond the valve in the ductus venous aided appreciably in the placement of the catheter. Firstly it aided in removing clots and secondly in estimating the distance the catheter should be introduced. The catheter, polyethylene tubing size "240 is then carefully introduced. Twisted past the umbilicus and continued into the umbilical vein to the site of the valve of the ductus venous. At this point obstruction is encountered, with careful pressure on the catheter and patience it passes with ease up to the junction of the ductus venous and hepatic veins with the inferior vena cava. If the infant is quite anemic and therefore hypoxic one will rarely find obstruction

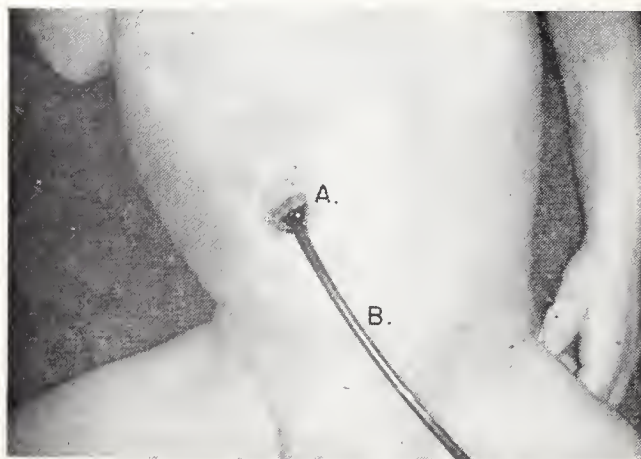


Figure 6. Photograph of Catheter in Umbilical Vein: A. umbilicus; B. catheter.

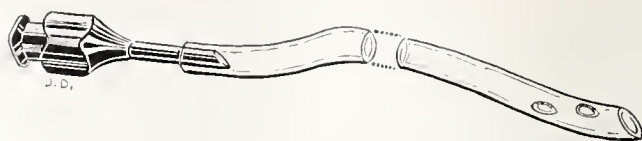


Figure 7. Drawing of polyethylene catheter employed in the Replacement Transfusion—No. 240 in size with a 15 gauge needle in one end. Note the additional openings in the catheter.

from the valve in the ductus venosus. The catheter in place is demonstrated in figure 6. Note the relationship of the catheter to the abdomen and the short umbilical cord. The umbilical arteries should be ligated if they bleed; otherwise, they do not enter into the procedure. The end of the catheter is cut as demonstrated in figure 7 in order that continuous flow can be maintained regardless of position. If the catheter is placed at the junction of the inferior vena cava with the ductus venosus; a ready source of blood is available from the liver and vena cava for aspiration; in addition to space should the flow into the infant be too rapid. This aids in preventing acute dilatation of the heart and rupture of vessels. Once the catheter is in place (see figures 9-10-11) the procedure should be carried out in a smooth rhythmic fashion. The operator should withdraw 20 cc of blood and discard it. This further aids in minimizing the danger of overloading the cardiovascular system of the infant. We have found that employing a 10 cc syringe (Luer-Lok type) gave better control and

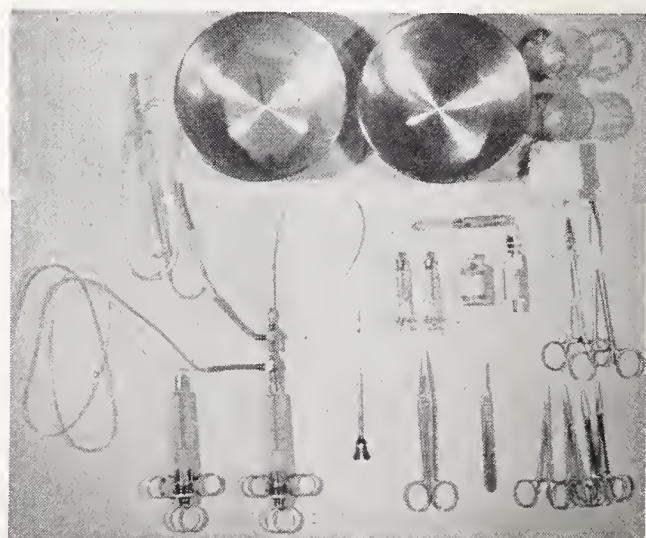


Figure 8. The equipment necessary for the transfusion. Note special equipment needed: 2 two-way stopcocks, and the catheter. Heparin and saline are used for washing syringes to prevent clotting and binding.





Figure 9. X-ray showing catheter introduced through the umbilicus into the umbilical vein.

reduced further the hazard of over load and undue pressure. After every 100 cc of blood exchanged the infant is given 1-2 ml of 10% calcium gluconate in 2 cc of saline to replace calcium necessary for clotting. The procedure is continued (10 cc out, 10 cc in) until an entire unit (500 cc) of donor blood is employed. In the



Figure 10. X-ray demonstrating catheter in the umbilical sinus, the upper hemostat is at the projected junction of the ductus venosus and the inferior vena cava.



Figure 11. Catheter at junction of the vena cava and ductus venosus.

average newborn this usually denotes complete replacement of two volumes of the infant's blood. This ordinarily results in 86-90% replacement. At the end of the transfusion the percentage of infant's blood remaining may be established by employing the Coombs test.

The donor blood for the infant should be fresh, Rh negative, type O (Witebsky substance added). The blood should be warmed to body temperature. During the procedure the infant should be strapped to

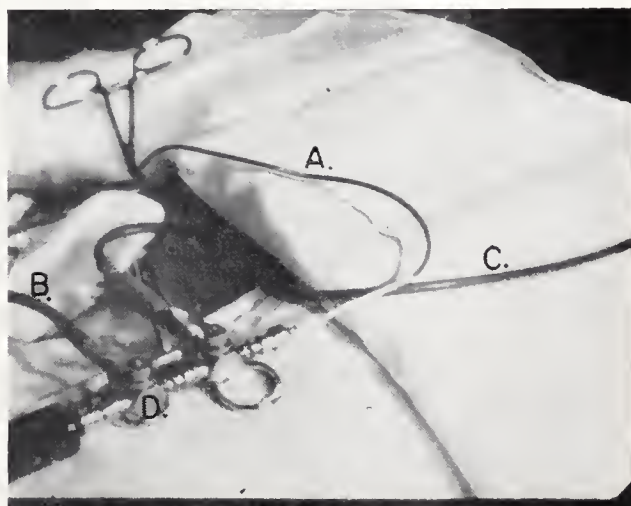


Figure 12. Replacement Transfusion apparatus in position: A. catheter in umbilical vein; B. waste blood to receptacle; C. fresh blood for transfusion. Note the tandem arrangement of the stopcocks and the syringe and catheter.



a circumcision board and kept warm either in an incubator or with warm water bottles. The stomach of the infant should be aspirated. Oxygen through a simple cone should be administered during the procedure. Following the transfusion the cord is tied with a simple chronic suture, remembering it may be necessary to repeat the procedure the following day. At the end of the transfusion a final sample of blood should be drawn for hemoglobin and serum bilirubin.

Though there is little evidence that breast feeding has a deleterious effect, it is felt best that it should be avoided. The infant should not be fed for at least twelve hours following the transfusion and should have vitamin K administered to it. Most workers place the infant on penicillin therapy.

Employing this technique on over 65 infants, the author has had excellent results. Some infants received as many as four exchange transfusions and up to as late as seven days post-partum. The procedure for the most part has been carried out by interns and junior house staff officers. The replacement transfusion procedure is simple and affords a high degree of success. The procedure should be repeated daily as long as the serum bilirubin remains above 30 mgm per cent.

#### BIBLIOGRAPHY

- Aidin, R., Corner, B., and Tovey, G.: Kernicterus and prematurity. *Lancet* 2:1153, 1950.
- Allen, F. H., Jr.: Importance of the blood groups in laboratory and clinical medicine. *New England J. Med.* 247:379, 1952.
- Allen, F. H., Jr., Diamond, L. K., and Vaughan, V. C.: III. Erythroblastosis fetalis; II. Prognosis in relation to history, maternal titer, and length of gestation. *Pediatrics* 6:441, 1950.
- Anderson, J. R., Barr, B. M., and Slessor, A.: Attempt to prevent erythroblastosis fetalis by use of cortisone during pregnancy.
- Crawford, H., Cutbush, M., and Mollison, P. L.: Hemolytic disease of the newborn due to anti-A, Blood. *Blood* 8:620, 1953.
- Day, R., and Haines, M. S.: Intelligence quotients of children recovered from erythroblastosis fetalis since introduction of exchange transfusion. *Pediatrics* 13:333, 1954.
- DeCosta, E. J., Gerbie, A., and Potter, E.: Cortisone and erythroblastosis. *Obst. & Gynec.* 3:131, 1954.
- Desforges, J. F., and Villadolid, T. O.: Failure of Hydrocortisone to effect neonatal jaundice. *J. Dis. Child.* 91:126, 1956.
- Diamond, L. K., and Denton, R. L.: Treatment of erythroblastosis fetalis. *J.A.M.A.* 128:686, 1945.
- Dunn, H. G.: Hemolytic disease of the newborn due to A-B-O incompatibility. *Am. J. Dis. Child.* 85:655, 1953.
- Hart, A. P.: Familial icterus gravis of the newborn and its treatment. *Canad. M. A. J.* 15:1008, 1925.
- Hsla, D., and Gellis, S.: Studies of erythroblastosis due to A-B-O incompatibility. *Pediatrics* 13:503, 1954.
- Javert, C. T.: Erythroblastosis neonatorum. *Surg. Gynec. & Obst.* 74:1, 1942.
- Kelsall, G. A., and Vos, G. H.: Fetal and neonatal wastage due to sensitization by Rh factor. *M. J. Australia* 1:261, 1955.
- Lathe, G. H.: Exchange transfusion as a means of removing bilirubin in hemolytic disease of newborn. *Brit. M. J.* 1:192, 1955.
- Levine, P.: The mechanism of isoimmunization by the Rh factor of red blood cells. *Arch. Path.* 37: 83, 1944.
- Levine, P.: The mechanism of transplacental isoimmunization. *Blood* 3:404, 1948.
- McGreal, D. A.: Kernicterus following exchange transfusion. *Lancet* 1:1323, 1954.
- Marting, F. L.: Wagoner, S., and Wilson, V. C.: Use of warm blood for exchange transfusions. *Am. J. Dis. Child.* 89:289, 1955.
- Mollison, P. L., Mourant, A. E., and Race, R. R.: The Rh blood groups and their clinical effects. *Med. Res. Council Bullet. No. 27* (London: H. M. Stationery Office, 1952).
- Pickles, M. M.: Hemolytic disease of the newborn (Springfield, Ill.: C. C. Thomas, Publisher, 1949).
- Potter, E. L.: Rh; Its relation to congenital hemolytic disease and to intragroup transfusion reactions (Chicago: Year Book Publishers, 1947).
- Vaughan, Victor C.: III. Current status of hemolytic disease of the newborn. *Postgrad. Med.* 18: 115, 1955.
- Watson, H. B., Crosse, V. M., and Hatchuel, W. L.: Premature delivery in hemolytic disease of the newborn. *Brit. M. J.* 1:679, 1954.
- Wiener, A. S.: Heredity and nomenclature of the Rh-Hr blood types. *Bull. World Health Organ.* 3:265, 1950.
- Witebsky, E.: Interrelationship between the Rh system and the AB system. *Blood* 3:66, 1948.

ARKANSAS PUBLIC HEALTH AT A GLANCE

Poliomyelitis

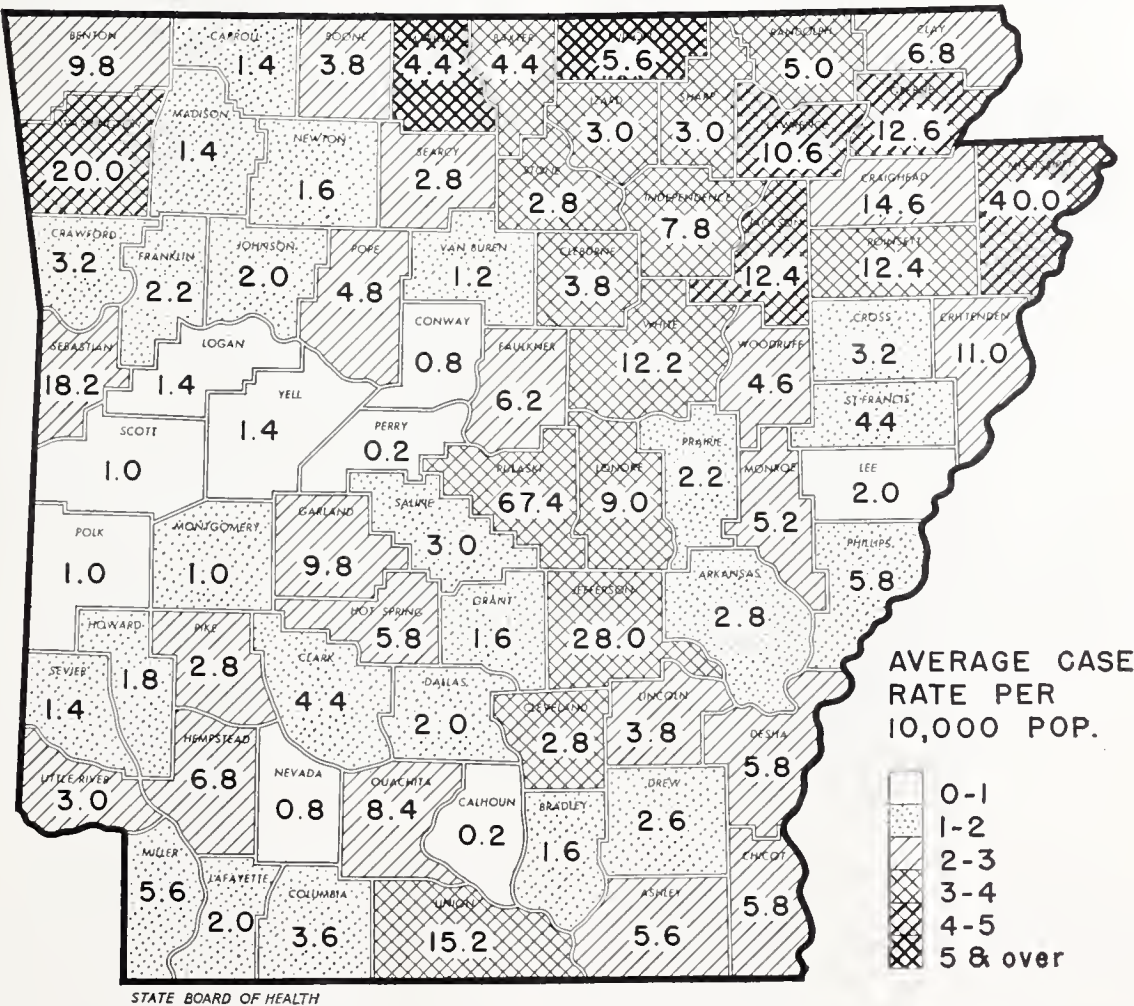
The accompanying maps show the incidence of poliomyelitis for the five years, 1949 through 1953, and the public programs of inoculation through 1956. The total figures for the state are as follows:

Estimated number of children eligible for inoculation .....769,592  
(1950 Census 0-19 years age group)  
Total first injections given through 1956...266,176  
(1954 NFIP Field Trials, 1955 NFIP

Program, and Federally-financed vaccine through 12-31-56)  
Percent of eligible children who have received one dose ..... 34.6%  
(The State Board of Health has no record of commercial polio vaccine given by private physicians)

The incidence of poliomyelitis and the incidence of protective immunization against it both show certain epidemiologi-

POLIO CASES IN ARKANSAS  
1949-53. THE FIVE YEARS  
PRECEDING POLIO VACCINE



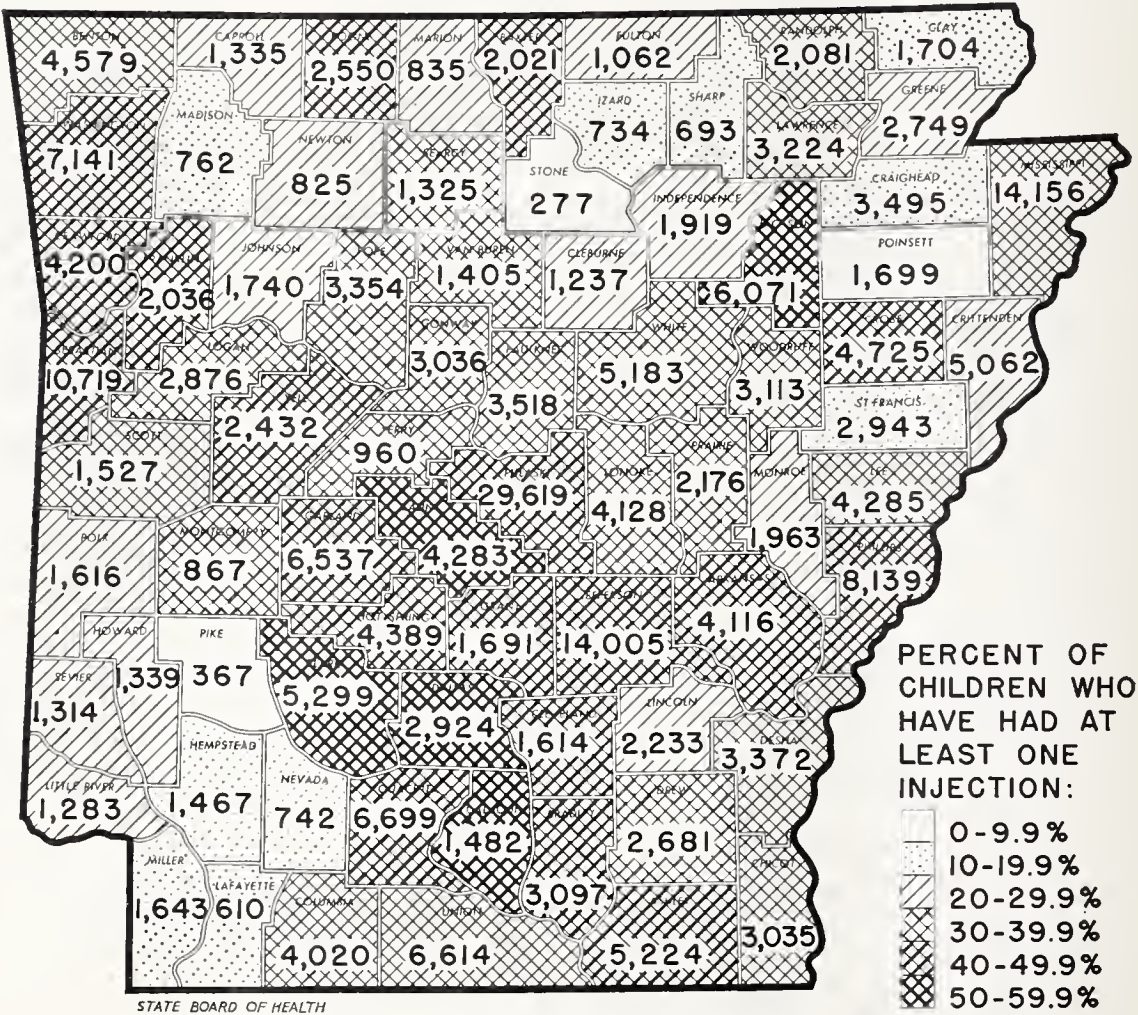
FIGURES IN COUNTIES INDICATE AVERAGE YEARLY  
NUMBER OF CASES



cal areas of light and heavy incidence. The program of immunization with Federally-financed vaccine has not always been carried out in proportion to the need as demonstrated by past incidence of polio. Basic policies regarding administration of the publicity-purchased vaccine have been worked out by the Arkansas Medical Society, but actual implementation in lo-

cal counties has depended a great deal on the interest and activity of local physicians. In this connection, the achievement in several counties is particularly notable (such as Calhoun and Saline Counties) where physicians had to take the entire responsibility of organizing the program, with no local public health nurse in the county to assist them.

PUBLICLY FINANCED  
POLIOMYELITIS VACCINATION  
IN ARKANSAS, 1954-1956



FIGURES IN COUNTIES INDICATE NUMBER OF CHILDREN UNDER 20 WHO HAVE RECEIVED ONE INJECTION OF POLIO VACCINE

\*Sponsored by the Arkansas State Board of Health.

## RESOLUTION

Dr. John E. Parson.

April 16, 1957

WHEREAS, the Power greater than ourselves has deemed it fitting to take from us one of our faithful fellow physicians, we, the members of the Pulaski County Medical Society mourn the loss of John E. Parsons, who was one of our members and also a member of the Arkansas Medical Society and the American Medical Association; and

WHEREAS, John E. Parsons, born and educated in Little Rock, Arkansas, graduated from the University of Arkansas School of Medicine in 1933, and interned at St. Vincent's Hospital, has served this community faithfully not only as a physician but also through public service to his fellowmen;

THEREFORE, Be it Resolved, that the Pulaski County Medical Society express to his family the esteem in which he was held and the heartfelt loss that has been sustained by the entire community.

BE IT FURTHER RESOLVED, that a copy of this resolution be made a matter of record in the minutes of the Pulaski County Medical Society and that a copy be sent to the family.

THIS RESOLUTION IS RESPECTFULLY SUBMITTED TO THE MEMBERS OF THE PULASKI COUNTY MEDICAL SOCIETY BY THE COMMITTEE.

K. W. Cosgrove, M. D.

Hoyt Choate, M. D.

T. J. Raney, M. D.

Approved May 7, 1957

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### Memoriam to Dr. O. C. Melson

May 7, 1957

In the passing of our friend and co-worker in the profession, Dr. Oliver C. Melson, a great loss has been sustained by the medical profession and the community at large.

It is well at a time such as this to consider and perhaps evaluate his contributions to the community. We will consider first his education.

He prepared himself in a very thorough and particular way for the kind of work that he planned to do, taking many years of training at the Mayo Clinic, more than was ordinarily expected at the time he prepared himself for his work. He wanted to be very sure before he started the practice of his profession on his own responsibility. Soon after arriving in Little Rock, he became Professor of Medicine and the head of the Department of Medicine at the University of Arkansas School of Medicine. He later became Counselor for the Southern Medical Society. During the past ten years he has been a member of the Advisory Board on Cardiovascular diseases and was Arkansas Chairman of the American Heart Campaign in 1952. Dr. Melson was Governor of the Arkansas College of Physicians for 12 years and he encouraged many young men to become members of the Association. At the time of his death, he held the office of Chief of the Staff at St. Vincent's Infirmary. He has been a member of the Pulaski County Medical Society and the American Medical Association since 1925.

The kind of work that he did has always attracted attention. A thoroughness in diagnosis and in treatment have impressed many of us that have worked with him.

Another factor in his personality was the great friendship that he had for his patients and their families. He always answered the call to see his patients late at night or early in the morning. He never refused them at any time.

Another thing that should be considered was his great dignity. As one of his outstanding patients recently said, "Dr. Melson is the embodiment of dignity in the medical profession. The minute he enters the room one knows that he is a doctor and one knows that he is a doctor when he leaves the room."

Some accumulate considerable money, others attain great fame in politics and hold high office, but we know of no high-



## FEATURES

er attainment that a man can reach than that which was reached by Oliver C. Melson. To hold the universal respect and love of his patients and of his fellow-physicians, and to have a whole community feeling a deep sense of personal loss at the time of his death.

Dr. Melson was a good man, a good citizen, a good husband and a good father. He gave very generously of his time and of his means for the maintaining of this society.

Since it was God's will that he be taken from us, be it therefore, resolved:

First, that we express our profound sorrow upon his death and extend our sympathy to his bereaved family and,

Second, that a copy of the memoriam be placed on the records of the Pulaski County Medical Society and a copy be sent to his wife and family, and a copy be sent to the Arkansas Medical Society for publication in the Journal.

Respectively submitted,

Dr. M. J. Kilbury, Chairman

Dr. H. Fay Jones

Dr. J. Nye Compton



# Editorial

## Heat and Heart Disease

ALFRED KAHN, JR., M. D.

High environmental temperature is unpleasant to well people. Historians have felt that warm environments are not as conducive to progress as cooler climates. Relatively little research has been devoted by the medical profession to the effects of heat on disease states.

Excellent research on the effects of heat on coronary artery disease has been performed by G. E. Burch. This is reviewed in *The Journal of Chronic Diseases*, Vol. 4, p. 350, October, 1956. There is an excellent brief bibliography with this article.

Burch's principal aim is to document how high environmental temperature increases cardiac work, which is obviously deleterious to the patient with heart disease. Normal body temperatures is maintained by ridding the body of excess heat through the integumentary and respiratory systems; blood acts somewhat like the coolant in the automobile motor. It absorbs heat at the site of production and carries it to the exterior of the body where the heat is lost through radiation, conduction and convection if the surrounding environment is cool; the skin acts like the automobile radiator. If the environmental temperature is high the only additional means of heat loss is brought into effect — namely vaporization.

Burch points out the bringing into play of the sweating-vaporization which occurs when other means of heat loss are deficient, brings an added strain on the cardiovascular system. Aside from the pure circulatory phenomena there are the added strains to maintain homeostasis in the presence of fluid and salt loss.

Specific instances are cited in which patients with mild chronic congestive heart failure went into acute heart failure with Cheyne-Stokes respiration, orthopnoea, etc., on exposure to high environmental temperatures. Venous pressure will go up. Using the Fick principle and cardiac catheterization, Burch has produced evidence that heat increases cardiac output and thus works a very trying situation for the cardiac patient who can scarcely pump out sufficient blood to meet the body's minimal demands.

All of this points up the necessity of explaining to the cardiac patient that he will have to reduce his physical activity in hot weather. A corollary to this is that air conditioning would be definitely beneficial to the low reserve cardiac patient, in his home, place of work, and transportation — and if ill, his hospital room.

To those of us practicing in relatively hot, humid areas, Burch's work is timely and important.



## Announcements

### International College of Surgeons Announces Awards in Obstetrics and Gynecology

The Division of Obstetrics and Gynecology of the United States Section, International College of Surgeons, announced that two awards will be made for the best manuscripts not exceeding 5,000 words submitted by December 1, 1957. The first prize will be \$500 and the second \$300.

Contestants must hold the degree of Doctor of Medicine from an accredited college of medicine, and (1) be interns, residents or graduate students in obstetrics and gynecology, or (2) be teachers of obstetrics and gynecology. Fellows of the College are not eligible.

### American Board of Obstetrics And Gynecology

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, for the 1958 Part I Examinations are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is September 1, 1957. No applications can be accepted after that date.

Current Bulletins outlining present requirements may be obtained by writing to the Secretary's office.

Robert L. Faulkner, M. D.  
American Board of Obstetrics  
and Gynecology  
2105 Adelbert Road  
Cleveland 6, Ohio

### Congress of Internal Medicine

The International Society of Internal Medicine has announced that its Fifth International Congress of Internal Medicine will be held at the new Sheraton Hotel, Philadelphia, Pennsylvania, April 24-26, 1958. This will be the first meeting of the Society outside of Europe. In making the announcement, the International Society's President, Sir Russell Brain,

who is also President of the Royal College of Physicians of London, said, "The Executive Committee of the Society has chosen the United States for its Fifth Congress in response to an invitation extended by the American College of Physicians and with the objective of securing greater American participation in its deliberations and of allowing foreign members, at first hand, to learn more about American developments in the medical sciences."

### NEW YORK MEDICAL COLLEGE FLOWER AND FIFTH AVENUE HOSPITALS

Announces a  
POST GRADUATE COURSE IN  
PEDIATRIC ALLERGY  
NOVEMBER 6, 1957-May 28, 1958  
30 Sessions  
WEDNESDAYS, 9 A.M.-4 P.M.

## Obituary

Dr. Thomas William Hardison, aged 73, who practiced medicine in the Petit Jean area 51 years died Sunday, April 7, 1957, at a Morrilton hospital. The physician was born at Richland (Columbia County). He attended Hendrix College and received his medical education at Memphis Hospital Medical College. After receiving his medical degree he moved to Adona, at the foot of Petit Jean Mountain as a contract physician for the Fort Smith Lumber Company. When the sawmill "worked out" in 1910, Dr. and Mrs. Hardison moved to the top of the mountain and he started private practice. At that time he was the only physician in an area of about 200 square miles. Dr. Hardison, a Methodist and a Mason, was a past president of the Conway County Medical Society and a member of the Arkansas Medical Society. He was a member of the state Park Commission at one time and later was its chairman. He was a member of the Arkansas Resources and Development Commission and chairman of its Park Committee for eight years. Dr.

## FEATURES

Hardison held an honorary doctorate of laws from Hendrix. He is survived by his wife; a son, Thomas W. Hardison, Jr., of Mountain View, Calif., and a grandchild.

A prominent Monticello physician, **Dr. Robert F. Hyatt**, 46, was drowned April 11, when the car in which he was riding with three other men plunged in to the backwaters of the Ouachita river on Highway 167. The men were en route home after attending a meeting of the DeSota Area Council of Boy Scouts in El Dorado. Dr. Hyatt was born in Monticello and was a graduate of Arkansas A&M College and the University of Arkansas Medical School. He had practiced medicine in Monticello since 1945. He was a member of the Monticello School Board, the Drew County, Arkansas and American Medical Societies. Dr. Hyatt was superintendent of the Sunday School Department and was a deacon at First Baptist Church. He was a member of the Monticello Rotary Club and Chamber of Commerce, a veteran of World War II and active in Boy Scout work in Monticello. Survivors include his widow; two sons, Robert Hyatt III and Edward Hyatt; his mother, Mrs. R. F. Hyatt, Sr.; four brothers: Dr. C. Lewis Hyatt, Dr. Wilson Hyatt, David T. Hyatt, all of Monticello and Dr. S. J. Hyatt, Richmond, Calif.; three sisters: Mrs. R. E. Lee, Montrose; Mrs. Spencer Albright, Richmond, Calif.; and Mrs. Morris Smith, Little Rock.

**Dr. J. L. Rushing**, age 78, of Chidester died April 20, 1957. Dr. Rushing practiced medicine in Chidester for 54 years. He was a life-long resident of Chidester and a member of the Rushing Memorial Methodist Church. He is survived by one daughter, Mrs. Chester Clingan of Chidester; one son, Edgar Rushing of Chidester; two brothers, W. E. Rushing of Camden, and W. G. Rushing of Chidester, and four grand-children.

**Dr. Elmer G. Burt**, 50, well known Magnolia physician, died unexpectedly Friday, April 26, at City Hospital where he had gone for his evening visit to his patients. Dr. Burt was born in Mississippi in 1907 and was a veteran of World War II. He

had been associated with the Rushton Clinic in Magnolia for several years until recently when he moved into his own clinic. Dr. Burt is survived by his widow; two daughters, Mrs. Mary Carolyn McClanahan of Shreveport and Miss Sara Katherine Burt of Magnolia; a son, James G. Burt of Magnolia; two sisters, Mrs. J. J. Crittenden and Mrs. F. D. Goodwin, both of Shreveport; two brothers, H. O. Burt of Shreveport and Austin Burt of Crossett.

**Dr. Oliver Clarence Melson**, 66, Little Rock diagnostician and a leader in the field of internal medicine, died April 30, 1957, near Pittsburgh, Pa. The physician was fatally stricken in Crafton, Pa., where he and Mrs. Melson were visiting her sister. Dr. Melson suffered a previous heart attack in Boston while at the convention of the College of Physicians and Surgeons and was en route back to Little Rock when he suffered the fatal attack. Recently, Dr. Melson was elected chief of staff at St. Vincent Infirmary and was an attending physician for Arkansas Baptist Hospital. A specialist in heart diseases, he had practiced in Little Rock for more than 30 years, was associated with the teaching staff of the University of Arkansas School of Medicine, had served on the Advisory Board on Cardiovascular Diseases and was Arkansas chairman of the American Heart Campaign in 1950. A native of Ohio he had been surgical pathologist and consulting physician at Mayo Clinic. Dr. Melson was a member of the American Medical Association, The American Geriatrics Society, a former governor of the American College of Surgeons, and a counselor of the Southern Medical Association. He was a member of Christ Episcopal Church, Country Club of Little Rock and the Little Rock Chamber of Commerce. Survivors include his widow, Mrs. Gwendolyn Henry Melson; a son, Oliver Craig Melson, Dixon, Mo.; a brother, Howard Melson, Colon, Mich., and three grandchildren.



## Medicine in the News

### Radiation Hearings

Leadoff witness for the Joint Atomic Energy subcommittee hearings which opened at the Capitol May 27 was Dr. Charles Dunham, director of the biology and medicine division, Atomic Energy Commission. Under Chairman Chet Holifield, hearings continued through June 12 and probed into the dangers of radioactive fallout from H-bomb and similar tests.

### Pennsylvania Gets Coveted PR Award

The Silver Anvil Trophy for "outstanding achievement" in public relations was awarded to the Medical Society of the State of Pennsylvania by the American Public Relations Association. The award was accepted by Board Chairman James Z. Appel of Lancaster at a dinner held in connection with the PR group's 13th national conference in Philadelphia.

Dr. Allen W. Cowley, Harrisburg, chairman of the society's PR committee, said the award was given for the program "Safeguard Your Health," instituted in 1955 as a public service program, educational in nature, statewide in scope, and designed to educate the people of Pennsylvania to the value of good health as compared with other human needs. The specific objective of this program, Dr. Cowley explained, is to educate the people to certain criteria of good medical care.

### 82 Schools Get Grants For Training of Researchers

Under a new Public Health Service Program to help increase the numbers of medical, dental, biological and mental health researchers, 82 professional schools will receive money to finance 140 outstanding students in special training. Participating will be schools of medicine, dentistry and osteopathy. Deans will make the selection of students, who must have completed one year of professional training. They will drop out of their reg-

ular courses during the training periods. The new program is an extension of the regular research fellowships administered by the National Institutes of Health.

### 3,804 New Physicians Licensed in U. S.

**Chicago**—The physician population of the United States increased by 3,804 in 1956, according to the annual report on physician licensure by the American Medical Association's Council on Medical Education and Hospitals.

Actually 7,463 physicians received their first licenses to practice medicine and surgery in 1956. However, 3,659 physicians died during the year. Subtracting this number from the number licensed for the first time leaves a gain of 3,804 in the total American physician population.

### Blue Cross, Blue Shield, AHA Back U. S. Employee Health Insurance

In a joint statement, Blue Shield Medical Care Plans, Blue Cross Association and American Hospital Association gave their official indorsement to the measure introduced by Rep. Chet Holifield (H. R. 7034) for a federal employee health insurance program. The associations make these major points:

1. The U. S. government, the nation's largest employer, is lagging behind other major private employers when it fails to provide a health insurance plan for its workers. The groups point out that they "have urged for several years that federal employees should have the opportunity to participate in health insurance programs on the same basis that employees of industry do through group programs."
2. Basic coverage is an essential in any program, the groups believe, and the Holifield plan provides this. However, the associations add that "we have agreed as well to the importance of providing extended coverage to apply against the expenses of complicated and long-term illnesses," which is part of the Holifield bill.
3. The Holifield bill provides payroll deductions, without which federal employees would not be able to qualify "for the best coverage offered." Up to this point the administration has resisted payroll deduc-

tions for U. S. employee health insurance, and it is not known whether this position has been changed.

### **Library of Medicine**

When Congress votes the money, the new home of the National Library of Medicine will be constructed at Bethesda, Md., near the National Institutes of Health and the Navy Medical Center. This site was selected by the board of regents at its second meeting.

### **Drive on for Allowing More Overhead Costs in Research Grants**

A growing number of witnesses have been urging the Senate Appropriations subcommittee to overrule the House and permit up to 25 per cent or more for overhead costs in federal grants to private institutions for medical research. The House, in voting the HEW budget for the next fiscal year, pegged the figure at 15 per cent. Secretary Folsom was the first to raise the question in the Senate, followed by objections from PHS Surgeon General Burney and NIH Director James A. Shannon. The latter described overhead costs as a "serious drain" on institutions' operating funds.

### **AHA Seeking \$150 Million**

#### **Loan Fund for Intern-Nurse Housing**

The American Hospital Association is asking Congress to allow hospitals operating programs for student nurses and interns to borrow up to \$150 million for building living quarters. Federal loans at 2 seven-eighths per cent interest with repayment up to 40 years are now available under the Federal Housing Act for college housing, but not for hospitals or nursing schools unless part of a college. AHA has informed Congress that the need is particularly acute in hospital schools of nursing. While regular colleges may get these low interest loans for nurse and intern housing, these institutions are producing only a small percentage of the nurses needs, AHA points out.

### **20 Medical Schools in Line for Mends Program of Defense Dept.**

Twenty additional medical schools have applied to participate in the medical edu-

cation for national defense (MEND) program sponsored by the Defense Department. Under it, faculty members of participating schools are indoctrinated in military and disaster medicine through symposia and other means being developed by the armed services. Courses, in turn, are offered students. According to Assistant Defense Secretary Frank Berry, 10 schools will be picked from among the 20 early in June. This will bring to 45 the number of schools offering special courses.

At a press conference, Dr. Berry also noted a "sharp" decrease in the number of resignations from the medical branches of the armed services. He attributed this to the passage last year of the career incentive act, which provides for additional pay for doctors serving beyond two years and also gives them additional credit toward promotions and retirement. There are enough physicians now commissioned or committed to service to take care of the military's needs for the next fiscal year without having to draft any doctors, he said.

He also reported on the success of a Defense mutual aid program in which teams go to foreign countries to help troops of our allies improve their nutrition. Five surveys have been completed (Iran, Pakistan, Korea, Philippines and Turkey) and one is to start in Libya in June.

### **Congress Urged to Pass Jenkins-Keogh Retirement Program**

Members of House and Senate are receiving "thousands of messages" urging enactment of the Jenkins-Keogh retirement legislation, according to Rep. Thomas Jenkins (R., Ohio), one of the sponsors. In a statement in the Congressional Record, Mr. Jenkins declares: "I am sure that practically all Members have been receiving messages of some kind with reference to the Jenkins-Keogh bill . . . As proof that it is a good bill, on yesterday I received 300 telegrams in favor of this bill, so it seems to be very popular. These telegrams were signed by doctors, lawyers and influential businessmen. I am advised that the membership of the House and Senate have received thousands of messages."

The legislation is being supported by the American Thrift Assembly for Ten



Million Self-Employed, which is acting on behalf of the American Medical Association and a number of other national associations representing the self-employed. Recently the Assembly asked its affiliates to urge their members to communicate with members of the House Ways and Means Committee, where the Jenkins-Keogh bill now is under consideration.

The bill would (a) allow the self-employed to put up to 10 per cent of their income per year (maximum of \$5,000) into restricted annuity programs or insurance without paying income tax on the amount, (b) receive the money back in the form of pension payments, generally after age 65, and at that time pay income tax on it. Employees of corporations now have the same tax advantage, and (c) impose a tax penalty if the money were withdrawn from the fund prior to the stated retirement age.

#### **New "AMA in Action" Booklet**

An attractive new booklet describing the "AMA in Action" as it moves ahead toward better medicine, better patient care, better distribution of medical services, a better informed public, and better public health came off the press in June. This 44-page, illustrated pamphlet points out various AMA services and benefits for both the medical profession and the general public. Copies of "AMA in Action" will be sent to AMA officers, trustees, and delegates, national opinion leaders, medical schools, and pharmaceutical representatives. In addition, limited quantities will be made available to state and county medical societies for distribution to their key officials.

#### **AMA Science Award Winners**

A 17-year-old South Dakota girl and a 16-year-old boy from Maryland earned the right to show their exhibits at the AMA scientific meeting in New York, June 3-7.

The winners are Dorothy Lundquist, a high school senior at Webster, S. D., and Warren Edward Prince, a high school junior of Hyattsville, Md. They were selected by an AMA judging committee headed by Dr. Alphonse McMahon, St. Louis, chairman of the AMA Council on

Scientific Assembly, and will receive special citations and an all-expense trip to New York City.

#### **Hill-Burton Act**

Senator Thye (R., Minn.) has proposed in S. 1969 to give states two more years to use the planning money provided under amendments to the Hill-Burton hospital construction program. The program provides grants for construction of diagnostic-treatment centers, hospitals for the chronically ill, rehabilitation facilities and nursing homes. Under existing law the money allocated to determine the need for construction would have to be used up before July 1 of this year.

#### **Senate Unit Votes \$25 Million Loan Authority for Hospitals**

At the behest of the American Hospital Association, the Senate Banking and Currency Committee on May 16 voted to earmark \$25 million of an increased loan authority under the Federal Housing Administration so hospitals can borrow money to build living quarters for student nurses and interns. The AHA originally had suggested \$150 million; a subcommittee trimmed this two-thirds; and the full committee reduced it to \$25 million.

Under the proposed amendment to the housing act, hospitals with state-approved educational programs for nurses and interns could borrow money at 2 seven-eighths per cent, with repayment over as much as 40 years. These types of loans have been available since 1950 for colleges but not for hospitals.

#### **House Committee Approves New Machinery for Doctor Procurement**

To replace the special doctor draft act that will expire June 30, the House Armed Services Committee on May 8 approved an amendment to the regular draft act. It was drawn up by the committee staff and differs from the bill (H. R. 6548) offered by Defense Department. Early action by the House is anticipated. The bill would:

1. Authorize the special call-up of physicians, dentists, and allied specialists

through age 35 if they have had educational deferments; they would be drafted as members of their professions, rather than by age groups, as is the case with other draft registrants.

2. Continue the National, State and Local Medical Advisory Committees to Selective Service System; in its bill Defense Department did not ask to have the committees continued, explaining that this was a Selective Service matter and Selective Service had not requested they be retained.

3. Continue several provisions that were in the special doctor draft act, but not in the department's bill, including: right of doctors to volunteer for and be commissioned at an early date, right of doctors to resign their commissions after 12 months or more of active duty, provision for use of alien physicians in the military services.

## House Committee 'Veto' Increase in Doctors-Troops Ratio

In the opinion of the House Armed Services Committee, the military services should not be permitted to put into effect a planned increase in the doctors-to-troops ratio from the present 3 per 1,000 to 3.4. In an unusual action, the committee voted to include such "instructions" in its report on a new doctor procurement bill. Chairman Vinson said the veto would not be binding on the services, but would "put the Appropriations Committee on the alert" to deny funds to finance the additional military doctors.

The "ratio," in effect since 1953, really is an objective rather than a legal limitation. The actual ratio of doctors to troops now is 3.4 per 1,000, although the official "ratio" calls for only 3. Announcement by military witnesses that the ratio was to be raised on July 1 precipitated the committee's decision to try to block the increase.

The committee's report to the House will say that in view of the fact a selective draft of physicians still is necessary, it is inadvisable to increase the ratio. Chairman Vinson added that the services are doing a fine job protecting the health of troops with a ratio of 3 per 1,000 now, and that it would "not impair their health

services" to continue that ratio another two years. It was estimated that holding the ratio at 3 would eliminate the need for an extra 1,000 physicians. The bill acted on by the committee would amend the regular draft act, which expires June 30, 1959.

## W. M. A.'s New International Civil Defense Medical Emblem

Doctors and their fellow workers in medical civil defense services have had no emblem to distinguish them as medical workers and to protect them in their vital duties to the civilian population. Few people realize that the Red Cross emblem protects the medical professions, their wounded patients and their supplies **only** if they are part of the military. Civilian medical defense people, as such, cannot use the Red Cross emblem even when they are actively at work in time of war.

In 1954, the International Committee of Red Cross conferred with W. M. A. and recommended that a special emblem be created and given legal status throughout the world for civilian medical defense. In subsequent conferences of interested international organizations, an emblem has been adopted, a "Code of Medical Ethics in Time of War" agreed upon, and plans made to obtain universal recognition of the new emblem by all professional and public agencies in every country.

## Now is the Time to Act On Jenkins-Keogh Legislation

The American medical profession is being asked to contact members of the House Ways and Means Committee, urging the committee to take favorable action immediately on H. R. 9 and 10, which would put into effect the Jenkins-Keogh plan. The bill would permit a self-employed person to put a small part of his income into a retirement fund, deferring payment of taxes on that amount until it is received in the form of retirement. Corporation employees have had this advantage for 15 years. The legislation has the strong support of the American Medical Association. It has not been acted on by the committee, partly because of Treasury Department objections to the implied loss of tax



revenue. Answering this point, proponents of the Jenkins-Keogh plan maintain that the resulting expansion of the nation's economy would result rather in an increase in tax revenue. Heading the national campaign to promote Jenkins-Keogh is the American Thrift Assembly, with headquarters in Washington. Cooperating in its work are many national associations, including AMA, American Bar Association, and American Dental Association. Pamphlets on Jenkins-Keogh are available at the Assembly's offices, 1025 Connecticut Ave., N. W. Washington, D. C.

A member of the House Ways and Means Committee is Rep. Mills of Arkansas.

#### **Witnesses Endorse Auto Safety Belt at House Hearing**

Testifying before a special subcommittee of the House Interstate and Foreign Commerce Committee, two researchers in auto accidents endorsed use of the lap safety belt, and said they felt manufacturers would equip autos with them when the public makes it plain it wants the added protection. The two were John O. Moore, director of automotive crash injury research at Cornell University, and Edward R. Dye, head of safety design and development at Cornell's aeronautical laboratory.

#### **FHA Seeks More Data On Nursing Homes**

Federal Housing Administration officials, seeking more data on nursing homes for the aged, called a meeting of religious groups who operate non-profit units for May 9 and 10. Among other things, FHA wants to find out just how extensive is the need for such facilities. The agency has had under study for months a plan of mortgage guarantees to non-profit organizations including hospitals for construction of nursing homes. Some authorities feel FHA cannot act without additional legislation.

#### **Professional Liability Film Available in July**

A new dramatic film pointing up ways of preventing professional liability claims and suits will be available July 1 for medical society meetings. This new film ti-

tled, "The Doctor Defendent," is the second in a series of films on various medicolegal problems being produced by the Wm. S. Merrill pharmaceutical company in cooperation with the American Medical Association and the American Bar Association. Bookings may be arranged through AMA's Film Library. It was shown for the first time Wednesday, June 5, during the AMA's annual meeting in New York City.

#### **AMA and Bar Group Appoint Committees**

At its last meeting the Board of Trustees approved appointment of an AMA liaison committee which will work on medicolegal problems with a similar committee of the American Bar Association.

The AMA committee is composed of President-Elect David B. Allman and Trustees Edwin S. Hamilton and James R. McVay.

The Bar Association committee, appointed by President David F. Maxwell, Philadelphia, is composed of Frank Haymond, Charleston, W. Va.; Lewis C. Ryan, Syracuse, N.Y., and Kester Walton, Asheville, N.C.

C. Joseph Stetler, director of the AMA law department, said these two committees will be effective in improving inter-professional relationships.

#### **Bethesda Selected for National Library of Medicine**

The building to house the new National Library of Medicine will be constructed on the grounds of the National Institutes of Health in Bethesda, Md., a Washington suburb. Nearby are the NIH Clinical Center and the Navy's Bethesda Hospital Medical Center.

#### **Doctor Draft Hearings Scheduled for Next Week**

On May 7-8 the House Armed Services Committee held hearings on a Defense Department bill to amend the regular draft act when the special doctor draft expires on June 30. AMA presented its views to the committee May 8, when Dr. Hugh H. Hussey, a member of the Board of Trustees, and Dr. Harold S. Diehl, chairman of the Council on National Defense testified.

## PERSONALS AND NEWS ITEMS

Two brothers, **Drs. Eldon and Julian Fairley**, have announced the opening of a new clinic in Osceola. The new modern building occupies a site adjacent to the Osceola Memorial Hospital.

The Arkansas Dermatological Society met at the Riverdale Country Club, Little Rock, on April 25, 1957. Special guests were **Dr. Stephen Rothman**, Prof. of Dermatology, University of Chicago; **Dr. Wm. G. McKright** of Oklahoma City; and **Drs. John Wm. Baird, Max Harry Cohen, Vonnice A. Hall, and Fountain Fox Miller** all of Memphis. The following officers were elected: **Dr. Ray Fulmer**, Little Rock, president; **Dr. E. P. Cope**, Little Rock, vice president; **Dr. Calvin Dillaha**, Little Rock, secretary; and **Dr. D. W. Goldstein**, Fort Smith, program chairman. Plans were made to form a regional group of dermatologists within a radius of approximately 400 miles from Little Rock, which will hold yearly informal meetings.

**Drs. James D. Huskins**, Siloam Springs, **Fount Richardson**, Fayetteville, and **R. B. Robins**, Camden, attended the American Academy of General Practice Ninth Annual Scientific Assembly held in St. Louis. Twenty-nine of the nation's top medical authorities discussed new developments and progress in the fields of therapy and diagnosis.

The First National Bank of Springdale has announced the appointment of **Dr. John W. Dorman** as a member of the board of directors of the bank.

A recent speaker at the Stuttgart Rotary Club was **Dr. L. H. McDaniel** of Tyronza. Dr. McDaniel spoke on "The Heart, Progress and Vision of Medicine in the 20th Century."

The home of **Dr. Arthur Fowler, Sr.**, Humphrey, was damaged by fire in April. Dr. Fowler received burns about the neck and face but was not thought to be in se-

rious condition. Mrs. Fowler was not injured.

The third annual convention of the Arkansas Medical Assistants Society was held May 4 and 5 in Hot Springs. There were many outstanding speakers from Arkansas and other states on the program, including **Dr. T. Duel Brown**, Little Rock; **Dr. W. W. Bauer**, director of the Bureau of Health Education; **Mr. Paul Schaefer**, Fort Smith; **Mrs. Frances Mills**, Waterloo, Iowa; and **Mrs. Carol Towner**, director of special services, American Medical Association.

"Blackwood Day" was observed at the Southern Baptist College in Walnut Ridge in April honoring **Dr. Jeff Blackwood**, Larado, and **Dr. Walter Blackwood**, Rector, for their more than 40 years of service to patients in that area.

The Malvern Kiwanis Club had as their guest speaker at the April meeting, **Dr. Raymond E. Peeples** of that city. Dr. Peeples spoke on "Your Medical School, A National Resource."

**Dr. Jeff Banks** has been named head of the Department of Gross Anatomy, University of Arkansas School of Medicine. The appointment was effective July 1.

The Arkansas Society of Technologists held their 19th annual state convention April 26 and 27 in Hot Springs. Featured speakers were **Dr. Edgar K. Clardy**, Hot Springs; **Dr. John B. Alsever**, Phoenix, Ariz.; **Mrs. Ruth Drummond**, Muncie, Ind.; and **Dr. Kerrison Juniper**, **Dr. Hilliard Hardin**, and **Dr. Ben I. Heller**, all of the University of Arkansas School of Medicine.

A Batesville physician, **Dr. Charles A. Taylor**, and two noted educators combined as speakers and panelists to provide an interesting program on mental and physical health and development at the April meeting of the Batesville B. & P. W. Club.

Now in the practice of general surgery in Benton is **Dr. Frederick B. Berry**. His



father is **Dr. Morgan C. Berry** of Malvern.

**Dr. Dick Hollis**, anesthesiologist at the State Sanatorium spoke at the Booneville Rotary Club in April.

It has been announced by **Dr. A. T. Walker** of the Walker Clinic in Mammoth Springs that **Dr. J. E. Lytle** is now associated with the clinic. Dr. Lytle moves to Mammoth Springs from Little Rock.

**Dr. James G. Stuckey**, Little Rock, attended the section on plastic surgery of the International Congress of Physicians and Surgeons in Turin, Italy, June 1-4. Prior to the meeting he attended the convention of the International Rotary at Lucerne, Switzerland, and after the meeting visited the medical center in Vienna, Austria. He returned home by way of Rome and Madrid.

**Governor Orval Faubus** broke ground Wednesday, May 1, for the Forrest Memorial Hospital in Forrest City. The new hospital will be located on a nine-acre site in the eastern part of the city. Costing around \$8,600,000, it will be equipped with the latest medical facilities.

The Arkansas Radiological Society elected at its annual meeting in Little Rock, April 22, 1957, the following slate of officers: **Dr. B. A. Rhinehart**, Little Rock, president; **Dr. Edwin Gray**, Little Rock, vice-president; **Dr. E. A. Mendelsohn**, Fort Smith, secretary-treasurer.

The newly-elected chairman of the Greater Little Rock Community Council is **Dr. W. E. Morris**, associate professor of clinical medicine at the University of Arkansas School of Medicine.

**Dr. J. H. Hellums** of Dumas has been elected to a fellowship in the International College of Surgeons.

The Southern Medical Association has conferred an honorary membership on **Dr. L. T. Evans**, Batesville, upon his retirement.

**Dr. Paul L. Mahoney**, Little Rock, was recently elected President-elect of the American Otorhinologic Society for Plastic Surgery, Inc.

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## PROCEEDINGS OF SOCIETIES

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The Craighead-Poinsett County Medical Society met May 1st in Jonesboro with **Dr. J. Malcom Aste** of Memphis as guest speaker. Dr. Aste discussed "Surgery of the Hand."

A district meeting of the Third Councilor Medical Society was held in Wynne May 9. Afternoon speakers were **Dr. Tom Mitchell**, **Dr. Frank Tullis** and **Dr. Lloyd Crawford** all of Memphis. A banquet was held in the evening with **Dr. R. B. Caldwell** of Baldwyn, Miss., as the guest speaker.

## *Woman's Auxiliary*

The Auxiliary to the Boone County Medical Society met Tuesday, April 9, at the Hotel Seville in Harrison. **Mrs. Wm. G. Barron**, president, presided. The revised constitution of the state auxiliary was read. There were twelve members present.

New officers for the Women's Auxiliary to the Clark County Medical Society installed during May are: **Mrs. Lewis Tilley**, Arkadelphia, president; **Mrs. Jean Peoples**, Gurdon, vice-president; **Mrs. Eli Gary**, Arkadelphia, secretary-treasurer and **Mrs. Albert Thompson**, Gurdon, reporter.

**Mrs. R. L. Smith** was hostess to ten members of the Pope-Yell County Medical Society Auxiliary at a dinner meeting in the Pearson Hotel, Russellville, during May. New officers are **Mrs. David Williams**, president; **Mrs. Charles Wilkins**, vice-president, **Mrs. R. L. Smith**, secretary; **Mrs. Max Mobley**, treasurer.

## BOOK REVIEWS

**The Ciba Collection, Volume III, Part III. The Digestive System; Liver, Biliary Tract and Pancreas.** Frank H. Netter, M.D., Edited by Ernst Oppenheimer. Pp. 165, Large folio, Illustrated, 1957, \$10.50; CIBA, Summit, New Jersey.

This monumental work is a pictorial portfolio of paintings of the anatomy and pathology of the human organism. The work is barely half done and this particular volume is one of the newest from the pen and brush of Dr. Netter. It is an excellent teaching medium.

The series will take many months to complete and the profuse illustrations give a clear, concise view of the anatomical relationships and the pathological conditions most frequently seen. It is of necessity to be several volumes. Primary chapters of this Part III give the embryonic anatomy and development as well as the adult. Microscopic sections are drawn in both the normal and pathological figures. The text references are minimal, but satisfactory. The student or the practitioner can find at a glance, his needs. It will be a ready reference at any time. Ciba is selling this excellent series at cost.

Fount Richardson, M.D.

**The Care of the Expectant Mother:** Josephine Barnes, M.D., F.R.C.S.(Eng.), F.R.C.O.G. Published 1956 by Philosophical Library, Inc., 15 East 40th St., New York 16, N. Y.

The management of pregnant women varies greatly from one culture to another. In Great Britain, from whence comes this textbook, most deliveries take place in the home under the care of exceptionally well trained midwives. Remembering this fact helps put the textbook into true focus for it is mainly directed to this level of medical attendant. The author establishes this fact in the preface, but adds that she hopes medical students, local authority medical officers, and generalists will also find something of value within its pages.

The book is a concise summary of current British obstetrical thought with perhaps more stress on diagnosis than management. Although American physicians would differ in the management of certain problems that Miss Barnes discusses, such differences are more philosophical than factual. Specifically, most differences would occur in the procedures followed in operative vaginal deliveries and in training for childbirth. The latter procedure, to which she devotes a full chapter, has not been applied generally in this country except in very modified forms.

Miss Barnes' other two major divisions—Normal Pregnancy, and Diseases Complicating Pregnancy—are well summarized and clearly presented.

The most striking chapter in the book does not involve obstetrical problems. Rather, it describes current Maternity Services in Great Britain. This

material alone is worth the price of the text. Any physician to whom Miss Barnes' book becomes available should read this chapter thoroughly.

Edward Clark Gillespie, M.D.

## TUBERCULOSIS ABSTRACTS\*

Sponsored by

The Arkansas Tuberculosis Association

### Tuberculosis Organisms Resistant to Drugs

By John L. Gompertz, M.D., and Donald E. Porter, California Medicine, December, 1956

Improved surgical techniques, modern drug therapy and an increasing trend toward home care have resulted in a pronounced shortening of the hospital stay of patients with tuberculosis.

Persons who have had this disease are living longer and this increased length of life and the care of the patients at home, plus drug therapy which nearly all patients receive, have created problems of their own. Two of these were made the subject of a study, sponsored by the California Tuberculosis and Health Association, namely: The incidence of hospitalized patients in whom the tubercle bacilli are resistant to anti-tuberculosis drugs on first admission; and the rate of relapse among tuberculous patients who have been discharged previously from any tuberculosis hospital.

#### PLAN OF STUDY

A questionnaire requesting information concerning admissions, discharges, evidence of drug-resistant organisms in sputum, and relapse rates was sent to 15 tuberculosis hospitals with 4,121 beds among the state's approximately 11,500 beds for tuberculosis. To obtain a valid sample, a small research hospital, a large county hospital, a group of medium sized county sanatoriums and a private hospital were included.

Four specific questions were included in the questionnaire. They were:

1. What is the incidence of patients who have left your hospital for any reason whatever and who have a positive sputum?

2. What is the incidence of patients discharged with positive sputum whose sputum possesses organisms resistant to



one of the anti-tuberculosis drugs and to which drug (s) ?

3. What is the incidence of patients *admitted* to your hospital for the first time with positive sputum, whose organisms are found to be drug-resistant to one or more anti-tuberculosis drugs, and to which drug (s) ?

4. What is the percentage of patients admitted to your hospital after having once been discharged from any institution as inactive ?

An early inquiry here indicated that no nation-wide data are available on relapse rate or on sputum status of patients admitted to hospitals.

However, in 1955 Chaves and co-workers reported on 898 patients observed by physicians in the New York City Department of Health for a period of 18 months. M. tuberculosis was demonstrated by culture of the specimens of 385 patients. Of the 43 patients (11 per cent) from whom strains were isolated which showed any resistance to streptomycin or isoniazid, only 15 (3.9 per cent) were significantly resistant. These 15 made up 1.7 per cent of the series of 898.

Beck reported ten cases of pulmonary infection with drug-resistant tubercle bacilli in a five-year study of 600 cases of newly diagnosed tuberculosis admitted to a New York State Tuberculosis Hospital. This is about 2 per cent of the 480 who had positive sputum, or 1.7 per cent of the 600 studied.

In our study among a total of 5,559 patients discharged from 15 institutions in 1954, 879 or 15.8 per cent had sputum positive for tubercle bacilli at the time of discharge. The lowest rate for any of the 15 institutions was 1.9 per cent and the highest was 28.3 per cent. Many of the discharges were, of course, against medical advice.

During the year 1954, the 15 institutions reported an average length of stay of 240.8

days, reflecting the trend toward a shorter hospital stay.

The table shows the number of sputum-positive patients admitted to four institutions who were found to be resistant to one or more of the anti-tuberculosis drugs. At the time of this study, only four of the fifteen institutions included reported that drug sensitivity tests were being conducted. For those four hospitals, the total number of patients admitted during 1954 was 762, of which 89 (11.7 per cent) had positive sputum with organisms resistant to one or more anti-tuberculosis drugs.

The four institutions reporting as having conducted drug sensitivity tests had a total of 762 first admissions during 1954. Of these patients, 13 (2.4 per cent) were found to be resistant to para-amino salicylic acid, 26 (3.4 per cent) to isoniazid and 34 (4.5 per cent) to streptomycin.

Thus 7.9 per cent of the total number of patients admitted were found significantly resistant to isoniazid or streptomycin. This is about four times the incidence reported by both Chaves and Beck (1.7 per cent of each total series studied).

Ten of the 15 institutions reporting submitted complete data relative to the number of patients admitted who had been discharged from any tuberculosis hospital previously with disease inactive. The rate of relapse among patients in these ten institutions in 1954 is, approximately one of every five patients admitted.

These data are probably not [very] accurate as the patient's word was taken for the diagnosis at the time of previous discharge. Some patients may have been ignorant or forgetful, particularly those who left against medical advice.

Several interesting and significant facts came to light: In the 15 institutions reporting, the proportion of patients discharged with sputum positive for tubercle bacilli averaged 15.8 per cent. The range of 1.9 to 28.3 per cent was very wide and the disparity was unexplained. One might hazard the guess that those hospitals having the higher rates also had a high rate of patients signing out against medical advice.

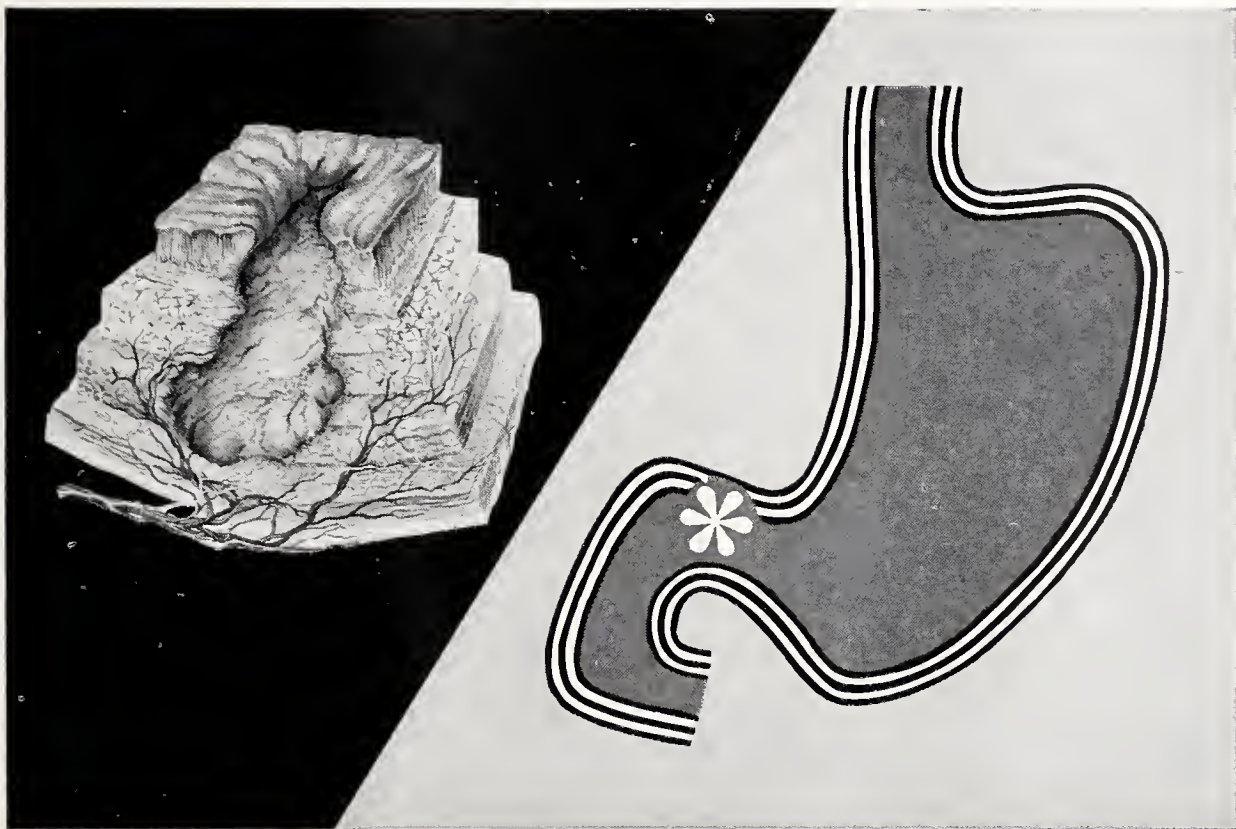
Only four of the 15 institutions reported drug sensitivity tests of positive sputums on entry. No reliable data as to drug resistance could be found for patients who

INCIDENCE OF PATIENTS ADMITTED TO FOUR INSTITUTIONS WITH POSITIVE SPUTUM IN WHOM ORGANISMS WERE RESISTANT TO ONE OR MORE ANTITUBERCULOSIS DRUGS\*

Institution Number	Total First Admission 1954	Total First Admissions, Positive Sputum and Drug Resistant	Per Cent Positive Sputum and Drug Resistant
3 .....	377	45	11.9
5 .....	160	15	9.4
7 .....	67	17	25.4
13 .....	158	12	7.6

\* Includes all drugs.

**BROAD ANTICHOLINERGIC BLOCKADE**



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The therapeutic benefits of this anti-

cholinergic blockade consist, as many clinical investigators have noted, in prompt relief of ulcer pain and pronounced acceleration of ulcer healing.

The suggested initial dosage is one 15-mg. tablet with meals and two tablets at bedtime. Two or more tablets four times a day may be indicated in severe manifestations. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

**SEARLE**



## FEATURES

had a positive sputum at the time of discharge. Drug sensitivity studies are important in workmen's compensation cases and from a public health and treatment standpoint. More tuberculosis institutions should be encouraged to carry out drug sensitivity studies on sputum.

The importance of drug sensitivity studies on the bacilli of patients being considered for operation cannot be emphasized too strongly.

The significance of present drug resistance studies is not entirely clear, as there are differences of opinion regarding the pathogenicity of some drug-resistant bacilli.

The probability is that as more drugs are used in treating tuberculosis, more resist-

ant strains will be developed. Among patients admitted to the hospital for the first time whose sputum was positive for tubercle bacilli, 11.7 per cent had organisms resistant to one or more anti-tuberculosis drugs.

More research is necessary to ascertain the nature of resistant organisms, and to prevent resistance from occurring. Perhaps a way can be found to cause the bacilli to revert to a sensitive state.

The proportion of readmittances to tuberculosis hospitals is sizeable. Perhaps it should not be called a relapse rate, inasmuch as not enough is known about the facts behind previous admissions. In any case, an average readmittance rate of 19.2 per cent seems much higher than it should be.



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### Burns and Their Care

JAMES G. STUCKEY, M. D.\*

The purpose of this paper is to present a workable, simple concept of burn therapy. No attempt will be made to review the many excellent papers and books on this subject.

#### HISTORY

Since the discovery of fire man has been interested in the treatment of burns. The relief of pain prompted the application by our predecessors of light earths mixed with vinegar, raw eggs, and wool, bull's gall dissolved with water, pigeon's dung, heat, cold, lime water, vinegar, and oil of turpentine (1), to mention only a few of the remedies. In more recent time Picric Acid and Tannic Acid have been used. Well meaning laymen have applied everything imaginable including a mixture of spider webs and soot and the hardest of all to remove, sorghum molasses and ashes.

#### ANATOMY

The skin is divided into two layers, the epidermis and the dermis. The epidermis is made up of the stratum corneum, stratum lucidum, stratum granulosum and stratum germinativum. It extends from the surface down to the bottom of the rete pegs. The dermis contains the hair follicles, sweat glands, sebaceous glands, elastic tissue fibers, lymph vessels, arteries, and veins. It extends from the bottom of the rete pegs down to the underlying fat. The epidermis and dermis vary greatly in depth. The skin on the outside of the leg is much thicker than the skin on the inside. This is quite important when skin grafts are being removed especially from obese, thin skinned individuals. The skin on the back, the palm of the hand, and the sole of the foot

is the thickest. The best place to obtain full thickness skin grafts are from the areas where the skin is thinnest; in the inguinal region, on the inside of the arm, and behind the ear.

#### DEGREE OF BURN

First Degree burn is manifested by erythema or redness of the skin. Second degree is any burn that goes down into the dermis but does not completely destroy the dermis; it is usually manifested by bleb formation. Deep second degree burns may leave only the hair roots, and these will act as a base for epithelial regeneration which will cover the area with a thin scar epithelium. The epithelium is frequently so thin that it is not satisfactory, and at times has to be replaced with split thickness skin grafts. The Third Degree burn includes all of the epidermis and dermis and can include underlying fat and even bone.

#### BURNING AGENTS

It is important to know how the patient was burned and what the burning agent was. Patients that are burned with hot water splashed on and off the body usually receive second degree burns. If the hot water saturates the clothing the heat is held in contact with the skin for a longer period of time and the burn can be third degree. Almost all oil burns, kerosene and gasoline, are third degree. Cotton flannel burns from cotton flannel nightgowns, etc. are almost always third degree burns. Electrical burns are usually deep third degree and deserve special consideration (2).

#### PERCENT OF BODY SURFACE BURNED

The "Rule of Nine" is one of the easiest methods of determining the percent of

\*Donaghey Building, Little Rock, Ark.



body surface burned. A rough outline of the patient should be sketched when the burn is first examined and the burned areas marked in along with some notation as to their percent. The "Rule of Nine" states that the head and neck comprise nine percent of the body surface, each arm constitutes nine percent, the upper anterior aspect of the thorax and abdomen nine percent, the lower anterior aspect nine percent, the upper and lower aspects of the back are nine percent each, the buttock and thigh nine percent and from the knee down nine percent. This totals ninety nine percent, with the perineum making up the remaining one percent. This is a rough estimate and is less accurate in children than in adults as their thorax and abdomen represent a greater percent of their body surface.

#### WEIGHT OF THE PATIENT

All patients should be weighed before the first dressing is applied. The weight and the percent of body surface burned are used in calculating the patients fluid requirements. The weight body surface relationships of adults and children are different; the children usually requiring slightly more than the estimated amount of fluids.

#### AGE OF BURNED PATIENT

The very young and the very old debilitated patient die with the smallest percent of body surface burn. A ten percent burn in an infant or in an 80 year old patient may be enough to throw them into shock whereas the same burn would be no more than a severe annoyance to a healthy young adult.

#### NEUROGENIC SHOCK

In dealing with an acute burn, the first consideration is the relief of pain. This is best accomplished by demerol or morphine and they may be given intravenously. This helps prevent the neurogenic shock which may be fatal in the first few hours. Deep third degree burns which destroy the nerve endings in the skin may be less painful than the more superficial burns.

#### SHOCK DUE TO SHIFT OF ELECTROLYTES

When a surface is burned there is a 48 hour period during which this surface

thickens. There is a movement of Plasma and Sodium Chloride into the burned area causing this thickening of edema. This loss of Plasma and Sodium Chloride from the intravascular space must be replaced to aid in the prevention of shock. The necessity for replacing these materials varies with the degree of body surface burned. Clinically it has been shown that an adult with a 25 per cent body surface burn will survive whether he is given blood, dextrin, plasma, or saline. However, when the patient has a larger area burned, it does make a great deal of difference what he receives. What to give the patient and how much is determined by careful observation of his general condition, including his pulse, blood pressure, respiration, general edema, the blanch return in his nail beds, etc. All acutely burned patients should have a retention catheter and their urinary output charted every four hours. Adults should put out 30 to 50 ccs of urine per hour, a child around 20 ccs per hour. A polyethylene tube should be inserted in a vein when the patient is first seen. The hemoglobin and hematocrit should be checked every four hours. The above should furnish a reliable index of the patient's condition.

Evans Rule (3) gives you a rough estimate of how much fluid the patient will require. Evans Rule states that lcc of normal saline and lcc of blood\* (plasma or plasma expander if blood is not available) should be given for every 1 per cent body surface burn per 1 kilogram of body weight. Not over 3,600 ccs of each solution should be given in the first 24 hours and a 50 per cent body surface should be the maximum per cent burn calculated. For the second 24 hours one-half of this amount is given. One can determine the accuracy of the fluid replacement at any one time by the urinary output, pulse, respiration, blood pressure, general condition and blood concentration of the patient. Remember that you are combating a decreasing blood volume. In addition to the fluid loss also figure the daily maintenance fluid requirement for the individual. This might be 1,000 ccs in a child or 1,500 to 2,000 ccs in an adult. After the first 48 hours the patient begins to re-absorb these materials and a diuretic phase develops during which large amounts of

\*Evans Rule per se calls for plasma



## BURNS AND THEIR CARE

fluid are excreted through the kidneys. Any individual that is severely injured develops an unquenchable thirst, and if allowed to do so will consume huge quantities of water. One burned patient drank 10,000 ccs of water and put out 10,000 ccs of urine in a 24-hour period. She developed water intoxication with all of its symptoms. To prevent water intoxication



Figure 1., Patient No. 1—Eleven days after a gasoline burn to hand, arm, axilla, and thorax, representing 15% 3rd degree body surface burn.



Figure 2., Patient No. 1—Sixteen days after burn. Wound excised in operating room and covered with split thickness skin grafts.



Figure 3., Patient No. 1—Twenty-seven days after burn. Patient was discharged thirty-one days post burn completely covered.

a mixture of one level teaspoonful of sodium chloride (3 to 4 grams) and one level teaspoonful of sodium bicarbonate ( $1\frac{1}{2}$  to 2 grams) per quart of water is given in place of water. This is given for the first 3 to 4 days only. The burned patient's potassium level is sometimes elevated; therefore, fruit juices and other materials that contain an excess amount of potassium should be limited until after the third day.

### ANTIBIOTICS AND TETANUS

Burned patients are placed on antibiotics and given tetanus toxoid or anti-toxin. An attempt should be made to elicit a history of drug allergy. This is most important as occasionally a severe reaction will develop and be masked by the burn.

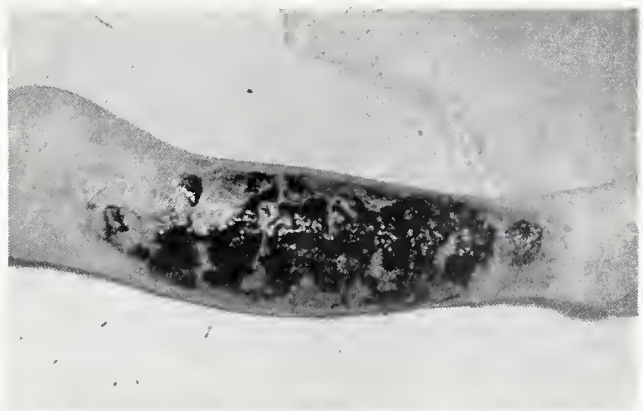


Figure 4., Patient No. 2—Burn six weeks after injury when patient was first seen. Wound was excised and grafted in one procedure. Patient was discharged after ten days hospitalization.



Figure 5., Patient No. 2—Appearance of wound one month after discharge.



## NUTRITION

A burn patient does not want to eat. Merely placing him on a high protein diet is not sufficient, he has to be force fed. In addition he should have supplementary feedings of a "Geverol" mixture which is made up of 2,000 ccs, containing 2,000 calories with 200 grams of protein. This along with the high protein diet will give the patient about 300 grams of protein a day. The burn patient should also be placed on stress formula vitamin tablets. If the patient does not eat, one should unhesitatingly put down a polyethylene levene tube for feeding purposes. We are all familiar with the skeletal remnants of a once healthy individual who has suffered extensive burns and has become severely malnourished. It is impossible to keep up orally and intravenously with the tremendous loss of plasma that exudes from a raw burn surface. It is the phenomenon of a leaking jug with a small mouth. The only way to stop the leak is to seal the wound. This can only be done with the patients own or homograft skin.

## RED BLOOD CELL LOSS

Red blood cells circulating in the skin of the burned area are destroyed at the time of the burn producing a mild anemia which is overshadowed by the marked hemo concentration due to shift of electrolytes and fluids into the burned area. The next loss of Red Blood Cells is due to infection on the surface of the granulating wound. Normally Red Blood Cells have a life span of 120 days but in a severely burned patient this may be decreased to as low as 20 days. Most of the Red Blood Cell loss in burned patients occurs during surgical debridement. The patient should have by-weekly hemoglobin and hematocrit determinations and receive blood transfusions as indicated.

## PROTEIN LOSS

Albumin is the protein fraction that is usually lost in severe burns resulting in a reversed albumen-globulin ratio. Since the albumin molecule is responsible for 80 per cent of the intra-vascular osmotic pressure these patients with reversed ratios become edematous and frequently have electrolyte imbalances. These imbalances cannot be restored to normal until the protein deficiency has been cor-

rected; human serum albumin and blood are the best material available for the correction.

## HOMOGRAFTS

In severely burned patients, 40 per cent or better, when enough skin is not available to cover them, and the granulating areas are ready to receive skin, homografts should be used. Homografts may be taken from live individuals or cadavers (until 8 hours after death). These grafts may be used immediately or stored. If they are to be stored, they should be wrapped in saline sponges and placed in an ice-box under regular temperatures where they may be kept up to ten days; penicillin, streptomycin, and saline should be in the bottle. A homograft will take and look like an autograft for 4 to 6 weeks after which time it will drop off. This is frequently a life saving procedure allowing the previously used donor sites to heal and enabling one to go back and take a second crop of skin 3 or 4 weeks after the first from the same donor area.

## AUTOGRAFTS

Skin grafts are used to cover raw surfaces and restore to these areas, as near as possible, the normal skin components. The thicker the graft the more normal it will be in appearance and function. Full thickness skin grafts will not take in the presence of infection and therefore should not be used on granulating wounds; but, they are excellent for correcting scar contractures. Grafts should not be taken from below the knees or on the arms unless there is absolutely no other donor area available. The skin graft should be taken as thin as possible when it may be necessary to reuse the same donor site. Three to four crops of skin can be taken from the back and the outside of the thighs. When a electredematone is used the strips of skin should be taken adjacent to each other and not leave skip areas of good skin. Postage stamp and pinch grafts are not recommended.

## CARE OF THE BURNED SURFACE

Burn wounds should be kept as sterile as possible. When the patient is first seen the wound should be washed with soap, water, and ether. A fine mesh vaseline dressing should be applied. This

dressing should be changed on the fifth day and the dressing changed every other day after that. About the tenth day the patient will no longer be able to tolerate the dressing in the room. The patient should then be taken to the operating room and under general anesthesia the wound should be washed with soap, water, and



Figure 6., Patient No. 3—Fifty percent body surface burn when patient was first seen one month after injury.



Figure 7., Patient No. 3—Left leg covered with smooth granulation tissue and ready to receive grafts. The available skin at this time was used to cover the arm and cadaver homografts were applied to the leg.



Figure 8., Patient No. 3—Appearance of the homografts ten days after application.

ether. This should be done every other day. When areas of third degree burns are well demarcated they should be debrided down to normal healthy tissue. It must be remembered that these people can lose tremendous amounts of blood with this procedure and they should be watched carefully for signs of shock. As soon as smooth, pink, flat granulation tissues are evident sheets of split thickness skin grafts should be applied. Preference should be given to those areas where function is most important; such as the joints, over tendons, the neck and the axilla. The hand should receive number one consideration and should be covered as early as possible. After the patient is discharged from the hospital it should be remembered that secondary procedures may be necessary to correct any contractor deformities. All split skin grafts contract and are frequently not large enough after they contract to allow normal movement. If this happens additional skin should be added after a 6 months waiting period.

#### THE DRESSING

Fine mesh gauze is used next to the wound. It has a mesh of 44 x 36, where-



Figure 9., Patient No. 3—Appearance two months later. Four crops of skin had been taken from the right side of the back.



as the usual gauze mesh is 32 x 28. If the coarse mesh is used granulation tissues grow up through the mesh and are torn when the dressing is removed. Muslin or bed sheeting has such a fine weave that it tends to trap secretion from the granulating wound, this is also true of several of the synthetic materials in vogue. The fine mesh gauze should be impregnated with vaseline, zeriform or scarlet red. These materials should not be applied so thick that the wound is macerated but just enough to keep the gauze from sticking to the wound. Vaseline or zeriform gauze is used on the burned areas and scarlet red gauze on the donor sites. These should be applied smoothly and may be rolled on. A layer of 4x4s and a kerlex roll is applied on top of the fine mesh gauze. A layer of abdominal pads and another kerlex roll, another layer of abdominal pads and then another kerlex roll is applied. This is held on by a three inch roller bandage placed smoothly and as tight as is possible without tearing the bandage. Adhesive tape is applied on top of this. Elastic bandages are not used as they are expensive and may exert a tourniquet action. Walco white waste is used for pressure between the fingers, the palms of the hand, the axilla and other irregular surfaces. This is usually placed on top of the 4x4s that are next to the fine mesh gauze and the other layers described are then added. Plaster splints are used frequently to immobilize the grafted areas. Dressings around the thorax and abdomen should be split after applying to allow freedom of respiration.

#### CARE OF THE GRAFT

The graft gets its nutrition through plasma during the first seven to eight days while blood vessels are growing into it. After three weeks its blood supply is adequate enough for epithelial proliferation to occur. Dressings are changed on the fourth or fifth days. The graft is inspected. Any blebs of serum or pus are opened and the dressing is re-applied. The wounds are dressed daily for the next two or three days until the production of serum, pus, etc. has stopped; then they are dressed every other day. On the tenth

day the wound is washed with soap, water, and ether and all sutures removed. Any open areas are painted with 10 per cent mercurochrome, (this is done at all graft dressings) and dressing every other day is continued until the patient is discharged from the hospital. Ten per cent mercurochrome is not used on large granulating wounds as the patient may absorb enough for mercury poisoning.

Special attention must be given to grafts below the knees. The graft will have an adequate blood supply after three weeks, but an elastic bandage should be worn over it for two or three months after the wound is healed to prevent blood blisters from forming when the patient is standing.

#### CARE OF THE DONOR SITE

The donor site is dressed down to the fine mesh scarlet red gauze on the seventh day. It is not necessary to dress this area again until the twelfth day at which time the wound is usually healed and the fine mesh gauze removed. Cold cream or vaseline may be applied to the donor area but no grease or oil is applied to the skin graft as this causes black heads, small abscess, etc.

#### CONCLUSION

It should be possible to discharge most patients with 20 per cent or less 3rd degree burns in one month from the time of their burn and have them completely covered. Burns of a greater magnitude may require two to three months hospitalization but certainly not one to two years as occasionally happens. No one enjoys taking care of a burn as they are messy, troublesome problems, but aggressive, alert treatment will return the patient to society as an acceptable, useful member in a reasonable length of time.

1. Cockshott, W. P.—The History of the Treatment of Burns—Surgery, Gynecology, Obstetrics, 1956, 102:116-124.
2. Brown, J. B. & Fryer, M. P.—Repair of Industrial Electrical Burns—Plastic and Reconstructive Surgery, 18:177-184, 1956.
3. Evans, E. I.—Treatment of High Intensity Burns—Arch. Surg. 62:303, 1951.

# Contributions of the Anesthesiologist to the Medical Profession\*

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The progress of anesthesiology during the past two decades has been outstanding and gratifying to the medical profession. While admittedly one of the youngest of medical specialties, it was readily recognized by The American Medical Association (1), Armed Forces (2), medical schools (3) and leading hospitals throughout the country (4). Its practice is indispensable now in institutions providing surgical and obstetrical care. With increasing public demand and the already established need for modern anesthesia by our medical colleagues, it is not too early to predict the fulfillment of the recommendations of the American College of Surgeons, concurred in by The American Medical Association, that there be at least one competent anesthesiologist available for each hospital in which anesthetic agents are administered (5).

The practice of anesthesiology is not only an art but a highly developed science based on the researches in physics, chemistry, physiology, pharmacology and other allied fields. It is also based on the clinical investigations of surgeons, internists, obstetricians and other fellow confreres. In fact, the progress and contributions of the anesthesiologist are not only theoretic and basic in nature but largely fruitful clinical applications. It is these applications that have made anesthesiology America's contribution to world medicine. Because of their number, they will be only catalogued and briefly summarized in this presentation.

Fundamentally, the anesthesiologist has made three significant contributions to the medical profession. By virtue of his intensive basic and clinical training, clinical experiences and maturity of judgment, and the availability of new agents and refined techniques, he can provide safer, better, and *optimum anesthetic management* for his patients from "the cradle to the grave" and for surgery never be-

fore attempted or contemplated in man. Secondly, he is ever-ready as the staff physiologist or pharmacologist, actually a *consultant* to his medical confreres on problems concerning certain aberrations of the central nervous, respiratory, cardiovascular systems, uses and abuses of newer drugs, etc. Finally, he has successfully organized and made available *instruction* in anesthesiology to medical students, internes, residents, specialists, and general practitioners.

## I. MODERN ANESTHETIC MANAGEMENT

Modern or optimum anesthetic management is based on the acceptance and thorough appreciation of the following axioms (see Table 1). Their formulation and clinical application represents one of the most significant contributions to our specialty. In fact, the axioms constitute the basis for "the bread and butter practice of anesthesia."

TABLE 1.

### *Fundamental Axioms of Anesthesiology*

1. Anesthesia causes disturbances in normal physiology.
2. There is *no ideal* anesthetic agent or technique for all patients.
3. All anesthetic agents or techniques have their advantages, disadvantages, limitations, contraindications, and complications.
4. The physiological status of the patient at the time of surgery must always be considered.
5. The requirements of the surgeon must be met.
6. For optimum results, therefore, the selection of the anesthetic agent and technique must be *individualized*.

During the past two decades, the scope of action of the anesthesiologist has been significantly broadened (6). Table 2 illustrates many duties of anesthesiologists depending on whether or not the hospital he practices in is engaged in an active

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teaching program. Of particular merit is the first and essential activity; namely, that the anesthesiologist be capable of providing modern anesthetic management. His contribution in this respect is the full realization that such management consists of three phases: (1) The preoperative visitation and evaluation, (2) the administration of anesthesia, and (3) postanesthetic care. It is fully recognized that the anesthesiologist is first the physician and secondly the specialist. He accordingly establishes his proper patient-physician relationship during his preoperative visit, at which time he evaluates his patient as an anesthetic risk, recommends treatment for physiologic deficits, prescribes preoperative medication, and decides upon the optimum anesthetic agent and technique to be employed.

TABLE 2.

*Scope of Activities of Present Day Anesthesiologist*

#### I. MODERN ANESTHETIC MANAGEMENT

A. Pre-operative Visitation and Evaluation; 1. Introduction to patient — "patient-physician relationship"; 2. Evaluation of history of illness, physical status, laboratory data; 3. Correction of physiologic deficits; 4. Proper premedication; 5. Individual selection of optimum anesthetic agent and technique; 6. Explanation to patient — premedication, type of anesthesia, reasons for post-anesthesia ward use.

B. Administration of Anesthesia: 1. Optimum depression for pain relief, muscular relaxation and adverse reflex obtundation; 2. Prophylaxis and/or treatment of respiratory and cardiovascular disturbances.

C. Recovery from Anesthesia: 1. Emergence or immediate recovery; 2. Convalescence or late recovery; (prophylaxis and/or treatment of respiratory and C-V disturbances).

#### II. RESUSCITATION AND INHALATION THERAPY

#### III. FLUID AND ELECTROLYTE THERAPY

#### IV. INTRA-AND INTERDEPARTMENTAL INTEGRATION

V. INSTRUCTION — Residents, internes, professional staff, etc.

VI. RESEARCH — Clinical and/or laboratory investigation when facilities, personnel, and time permit.

A. Newer Anesthetic Agents and Adjuvants:

Table 3 illustrates the various drugs that have been introduced in anesthesia during the past two decades. Admittedly, physiologists, pharmacologists, organic chemists, and others have reported the initial and significant laboratory studies. However, their ultimate clinical application and acceptance constitutes the combined, relentless but fruitful efforts of anesthesiologists. No effort will be made in this presentation to define all the laboratory and clinical properties of these agents. Suffice it to say that none are ideal for every patient, most have their place in anesthesia and a few are still being evaluated clinically.

TABLE 3

*Newer Anesthetic Agents and Adjuvants*

I. Inhalation Anesthesia — Trichlorethylene, fluomar.

II. Intravenous Anesthesia — Pentothal, surital, neraval, viadril, dolitrone, megimide.

III. Regional Anesthesia — Pontocaine, cyclaine, xylocaine.

IV. Opiates, etc. — Meperidine, nisentil, nalorphine, methadone, levorphan, daptazole.

V. Adjuvants — Curare and derivatives.

Trichlorethylene (7) and Fluomar (8) have a definite clinical advantage over other inhalant general anesthetic agents like ether and cyclopropane in that they are non-explosive. Unfortunately, their potency and toxicity limit their widespread use. Sodium pentothal is a well established agent for intravenous administration with well known limitations and contraindications (9). However, newer agents like Surital (10) and Neraval (11) appear to have shorter duration of action and less secondary deleterious effects. Three other agents for intravenous administration have been reported in the lit-

erature only recently, and their clinical usefulness is still being determined. *Viadril* (R), 21 hydropregnanedrone-sodium-succinate hydroxydione (12) is a non-analgesic hypnotic analogous to the thio-barbiturates. It is less potent and slower in action than sodium pentothal and possesses a lesser depressant action on respiration. Some of its undesirable features are that it may produce serious circulatory depression, thrombophlebitis, thrombosis of veins, hiccups and clonic-like movements of extremities. *Dolitrone* (R), 5-ethyl-6-phenyl-thiazine 2, 4 dione (13) was initially introduced as having three times the margin of safety as thiopental and minimal cumulative effects with little or no depression of respiration and of circulation. Further studies by Tait et al. revealed that Dolitrone is devoid of analgesic potency but provides a rapid and pleasant induction, excellent amnesia, and a beneficial depression of upper airway reflexes. They recommend it particularly for induction of general anesthesia. More recently, Lorhan (14) has reported favorably on the use of Dolitrone for anesthesia. *Megimide* (R), a brand of B-ethyl-B-methyl-glutarimide, with a structural resemblance to the barbiturate ring, has been recently studied and reported to be a barbiturate antagonist. Shaw et al. (15) found that Megimide produced convulsions in laboratory animals which could be prevented with pentobarbitone. They also reported that barbiturate intoxication could be successfully treated with general medical treatment and "specific therapy with Megimide." Confirmation of these findings is being sought by many anesthesiologists. Pontocaine appears to have largely replaced procaine for spinal and nerve block anesthesia because of its longer action. More recently, however, xylocaine (16) has become the popular choice of anesthetic agent in almost all forms of regional anesthesia except spinal anesthesia. Its onset of action is quicker and duration of effect longer than with pontocaine. According to some, its secondary adverse actions are less than with protocaine.

Without question, the outstanding single contribution of anesthesiologists during the last two decades has been the introduction, evaluation, and defined clinical

usefulness of curare (17) and its related synthetic preparations (18). By virtue of its chief and peripheral action on the myoneural junction of the motor end-plate, muscular relaxation, so necessary for many types of surgery, can be provided in the poor-risk patient as well as the good ones, without deepening the plane of general anesthesia. While it is fully recognized that the curare, like any other pharmacological agent, has both secondary undesirable as well as the primary useful actions, its clinical uses have been well delineated. In good-risk cases requiring prolonged muscular relaxation, d-tubocurare in proper amount may be the adjuvant of choice to the general anesthesia administered. Shorter acting preparations, like syncurine, flaxedil, and succinylcholine hydrochloride, may be more desirable in that they do not affect autonomic ganglia nor produce a histamine-like response. At the moment, intravenous succinylcholine drip with sodium pentothal and nitrous-oxide-oxygen or with intravenous demerol and nitrous-oxide-oxygen anesthesia appears to be popular. The drip technique, however, warrants a more critical evaluation and perhaps replacement by the intermittent injection method in view of the all too many reported cases of prolonged postoperative apneas. It is very possible that in the latter cases, the patients were never "titrated" against the administered succinylcholine chloride by the drip method nor was the amount of such drug at any point of its administration ever known. It is important to emphasize that the use of curare and its derivatives must be judicious and expertly balanced with the various agents employed for general anesthesia in poor risk cases.

Table 3 also illustrates many new opiate drugs made available only during the past two decades. Most of these are employed in pre- or post-operative medication such as meperidine, nisentil, methadone, levorphan, anileridine, and are well known to the medical profession (19). Anileridine, related to demerol in chemical structure and action, promises to be a valuable addition to the list of opiates. Daptazole, a brand of amiphenazole, is reported to be a valuable new morphine antagonist (20). Its preliminary study revealed an insignificant effect on the



analgesic action of morphine but a marked and lasting antagonism to the respiratory and narcotic depression. Its true and specific role in the pharmacopeia of anesthesiologists is presently being determined.

#### B. Newer Apparatus and Techniques:

For purposes of simplicity and brevity, the long list of newer apparatus and refined techniques made available in the last 20 years is enumerated in Table 4. Their availability, along with the newer anesthetic agents and techniques, have contributed immeasurably to the success of cardiac, thoracic, and other forms of delicate and complicated surgery. They have also enhanced the prestige and indispensibility of the modern anesthesiologist. General anesthesia for the poor-risk cases cardiac, thoracic, and upper abdominal surgery, is dangerous, foolhardy and not recommended without an endotracheal tube in place. Many pediatric anesthesiologists now advise closed system techniques for infant anesthesia (21) (22) (23). Non-rebreathing apparatus for general anesthesia as the Leigh, Stephen-Slater, or Fink type, have definite advantages over the conventional semi-closed systems in patients of all ages. Continuous spinal anesthesia has been the technique of choice for all types of abdominal surgery. However, with the availability of the curare preparations and more particularly the ever-increasing tide of a "suit-minded public," continuous spinal anesthesia is losing its popularity. Continuous caudal analgesia is not as commonly employed as in the past — probably due to the demands of this technique and the paucity of anesthesiologists.

TABLE 4.

#### *Newer Apparatus and Techniques*

I. IMPROVED AIRWAYS — Pharyngeal, endotracheal, endobronchial.

II. REFINED LARYNGOSCOPES — Infant, child, adult.

III. CONTINUOUS SPINAL, EPIDURAL, AND CAUDAL TECHNIQUES.

IV. CLOSED SYSTEM FOR INFANTS — Inhalation anesthesia.

V. NON-REBREATHING APPARATUS — Inhalation anesthesia.

VI. DIAGNOSTIC AND THERAPEUTIC NERVE BLOCKS.

VII. HYPOTENSIVE TECHNIQUES.

VIII. HYPOTHERMIC PROCEDURES.

IX. BALANCED ANESTHESIA — 'POLY-PHARMACY.'

X. MECHANICAL VENTILATORS.

The increasing role of the anesthesiologist in the physiologic studies of pain, the organization of "pain clinics" and the development and clinical application of diagnostic and therapeutic nerve blocks is clearly evident in current medical literature. Without question and without parallel may be cited the epic volume of Bonica on *The Management of Pain* (24). Dr. Bonica's prodigious work has become the prime reference for physicians interested in pain.

The surge of enthusiasm for induced hypotension during anesthesia for conservation of blood for the patient and the availability of a bloodless field for the surgeon is now waning. Contrary to earlier reports, many hazards are now recognized. Persistent hypotension, shock, thromboses, cardiac arrest, anuria, and cerebral edema, are but a few. Furthermore, contra-indications such as age extremes, cardiovascular disease, pre-existing thromboses, anemias, oligemia, etc. are now accepted by many anesthesiologists. A well organized and a keen analysis of hypotension induced during anesthesia has recently been reported by Little (25) and is highly recommended to all interested physicians.

Hypothermia is an adjuvant to anesthetic management, introduced by surgeons and refined to some extent by anesthesiologists, is rapidly being evaluated. Like so many other new techniques or anesthetic agents, it has initially enjoyed a wave of enthusiasm followed by a period of cautious condemnation until careful laboratory and clinical confirmatory studies justifies its limited acceptance. At the moment, particular emphasis is being placed on its use for intra-cardiac septal surgery (26).

The introduction of "balanced anesthesia" constitutes a significant contribution of the highly trained clinical pharmacologist and anesthesiologist (27). The principal of the technique is based upon the carefully estimated and judicious use of small doses of many anesthetic agents — a sort of "poly-pharmacy," no one drug of which is clinically in excess — yet combined they meet the requirements of optimum anesthetic management. This technique is difficult, intricate but clinically advantageous as compared to the use of large, dangerous doses of one or two anesthetic agents. Its indiscriminate use, particularly by the untrained or misinformed anesthetist is hazardous and to be condemned.

One of the most recent contributions of the anesthesiologist is the introduction of the use of mechanical ventilators during general anesthesia. They are designed to aid the anesthesiologist, to prevent hypoxia, hypercarbia, asphyxia, and to counteract the aberrations in resistance and pulmonary compliance. In essence, they are supposedly to replace the "educated hand" of the past — the procedure by which these physiological disturbances are controlled manually. One wonders if that is always possible with the mechanical ventilators already available; the Jefferson, Emerson, Stephenson, etc. The recent studies of Etsten on his manual ventilator challenge the clinical usefulness and desirability of mechanical ventilators (28).

No presentation of contributions of the anesthesiologist is complete without a comment on the progress made in fluid therapy. Aside from the fact that many anesthesiologists, by choice or necessity, are in charge of a blood bank, many have become vitally interested in water and electrolyte balance. Basic principles have become established and highly refined techniques and apparatus been described. Special attention to this subject has been given by Leigh (21), Smith (29), and others (30).

Because of the basic training and daily clinical experiences, the anesthesiologist has become especially proficient in handling problems of respiratory resuscitation. Accordingly, he is often asked to

supervise Inhalation Therapy in a hospital or to provide respiratory resuscitation on patients in the operating and maternity pavilions, postanesthesia observation room, emergency room, and patients in the ward. With the use of airways, laryngoscopes, endotracheal tubes, "iron lungs" or arm-lift back-pressure method if apparatus is unavailable, and with the use of oxygen via catheter, nasal or tent method, he very often contributes a life-saving measure in the care of patients. His role on the "polio team" of a hospital in recent years is highly commendable (31).

## II. CONSULTATION SERVICES

At no time in the practice of medicine has a physician gained stature and respect so rapidly and dramatically as the anesthesiologist in the past two decades. Aside from his contribution of modern and optimum anesthetic management for surgical and obstetrical patients, his services have proven to be invaluable to internists and general practitioners. In a broad sense, the modern anesthesiologist may be referred to as the "clinical physiologist and pharmacologist" of a hospital staff. He can provide consultation service to any physician of a staff on a 24 hour a day basis, and on a variety of subjects. First and foremost are those questions referable to optimum anesthetic management of a patient during any of the three phases; namely (1) preoperative visitation and evaluation (2) anesthetic administration, and (3) postanesthetic care. Secondly, the anesthesiologist is often called to outline the uses, misuses and abuses of new drugs such as the pressor agents, depressor drug (sympatholytic, etc.), new opiates ACTH derivatives and their relation to patients undergoing surgery, ataractics such as chlor-promazine, equanil, Miltown, and other drugs. Very often internists call upon the anesthesiologist to perform a diagnostic or therapeutic nerve block as an adjunct in their medical therapy, particularly in patients with hypertension, asthma, thrombophlebitis, diabetic ulcerations, intractable pain due to cancer or angina pectoris, etc. Physicians frequently call upon the anesthesiologist because of his training and clin-



ical background to aid them in resuscitating patients with gas poisoning (CO, chlorine, CO<sub>2</sub>, etc.), atropinism, barbiturate or opiate overdose. As the clinical physiologist in a hospital, the anesthesiologist often can contribute to the emergency treatment of a patient showing serious aberrations of the vital systems of the body. He has often been consulted to explain the etiology and pathogenesis of such derangements and, particularly, to provide immediate symptomatic or specific treatment (32). Some of the more common derangements may be noted as follows: coma, convulsions, cyanosis, dyspnoea, hypoventilation, apnea, peripheral vascular collapse, pulmonary edema, anuria, cardiac arrest, etc. Most of these dysfunctions are acute and necessitate prompt and pre-planned team action. The anesthesiologist has earned a place on such teams.

Of recent date, the anesthesiologist has contributed to his fellow colleagues, hospital administrator, and board of directors in their plans for a new building or remodeling of the old. Information of particular merit may be obtained from the anesthesiologist with reference to size, location and layout of new operating rooms, postanesthesia observation ward, use of conductive flooring, proper type of air conditioning and humidity units, ideal location for electrical outlets, and proper location for storage of inflammable anesthetic agents. Such data concerning proper safety devices in the operating and maternity pavilion has become imperative to the background of the present-day anesthesiologist (33).

### III. INSTRUCTION IN ANESTHESIA

It is a well recognized fact that anesthesiology has become indispensable to the modern practice of medicine. As such, therefore, instruction in the principles and practice of this important specialty should be provided early, comprehensively and continually in the life of the student of medicine. It has been strongly recommended that indoctrination in anesthesiology begin in the first year of medical school and continue until graduation. It has also been emphasized that clinical orientation or the administration of anesthesia begin with the fourth year of med-

icine and continue throughout internship training. These goals are anticipated contributions of modern anesthesiologists. To date, only about half of our medical schools have supported these plans (34).

The anesthesiologist has contributed successfully to provide postgraduate instruction. Recent data from the American Board of Anesthesiology reveals that there are now 203 approved two year residencies in Anesthesiology, comprising a total of 964 residents. Approximately 1,697 anesthesiologists have already been certified (35).

Instruction in anesthesia does not end with the completion of a residency nor with the certification of a candidate. It is continuous and endless. Municipal, state, regional and national meetings for the presentation of academic and clinical investigations in anesthesia are scheduled periodically throughout the country. Such teaching programs are available to all physicians interested in anesthesia. Of particular note are the annual conventions of The American Society of Anesthesiologists, the New York Postgraduate Sessions, the Kansas University Medical Center Anesthesiology Programs and the Biennial Western Conference.

The American Society of Anesthesiology initiated annual Refresher Course Programs eight years ago. Admittedly, it was originally a trial experiment in anesthesia education. However, the ever-growing enthusiasm for refresher courses covering all aspects of the field of anesthesiology has been overwhelming. In fact, their increasing need and popularity has necessitated the inauguration of annual mid-winter programs.

Although many general practitioners attend the annual and mid-winter Refresher Course Program sponsored by the American Society of Anesthesiology a special effort has been made to make available additional clinical instruction to them (36). This noble project is under the supervision of the Subcommittee on Postgraduate Education for the Part-Time Anesthesiologist of the American Society of Anesthesiologists. The prodigious effort of this committee is most commendable. Its contribution constitutes one of the most fundamental, practical, and

worthwhile efforts to the medical profession. It is helping general practitioners provide safer and better anesthesia to the smaller communities where anesthesiologists are unavailable. Recently, The American Academy of General Practice has stated officially that general practitioners may receive full credit in Category I towards their educational requirements by attending those refresher courses (37).

#### IV. SUMMARY

The contributions of the anesthesiologist to the medical profession during the past two decades have been numerous and gratifying. Fundamentally, he has succeeded in providing (1) safer, modern, optimum anesthetic management for all types of surgery — some never attempted or contemplated until recently, (2) consultation to his fellow anesthesiologist, surgeons, internists, and other physicians on problems referable to specific dysfunctions of the vital systems of the body, and (3) instruction in anesthesiology to all interested physicians. Various phases of these contributions are discussed in detail. By virtue of these contributions, the anesthesiologist has become indispensable in the modern practice of medicine.

#### References

- Wood, Paul M.: "American Board of Anesthesiology," *J. A. M. A.*, Vol. 139:11-13, Jan. 1, 1949.
- Walson, C. M.: "Station Hospital Organization," *Army M. Bulletin*, Vol. 54:3, October, 1940.
- A. M. A.: "Council on Medical Education and Hospitals: Approved Residencies and Fellowships," *J. A. M. A.*, Vol. 117, p. 67, Aug. 30, 1941.
- A. M. A.: "Council on Medical Education and Hospitals," *J. A. M. A.*, Vol. 111, p. 2213, December 10, 1938.
- Martin, Stevens J.: "Anesthesiology: A Challenge," *J. A. M. A.*, Vol. 149, p. 1517, Aug. 23, 1952.
- Martin, Stevens J.: "The Present-Day Anesthesiologist," *Jour. of Iowa State Medical Society*, Sept., 1950.
- Nowill, W. K., Stephen, C. R., and Searles, P. W.: "Evaluation of Trichlorethylene as an Anesthetic and Analgesic Agent," *Arch. Surg.*, Vol. 66, p. 35, Jan., 1953.
- Sadove, Max S., Balagot, Reuben C., and Linde, Harry W.: "Trifluoroethylvinyl Ether (Fluoromar). 1. Preliminary Clinical and Laboratory Studies," *Anesthesiology*, Vol. 17, p. 591, July-August, 1956.
- Adams, Charles R.: *Intravenous Anesthesia*, Paul B. Halber, Inc., New York, 1944.
- Helrich, M., Papper, E. M., and E. A. Rovenstine: "Surital Sodium: A New Anesthetic Agent for Intravenous Use. Preliminary Clinical Evaluation," *Anesthesiology*, Vol. 11, p. 33, Jan. 1950.
- Fitzpatrick, Leo J., D'Arcy, C. Clarie, and Mersch, Marcel M.: "Methitural Sodium (Neraval Sodium)—A New Ultrashort Acting Intravenous Anesthetic," *Anesthesiology*, Vol. 17, p. 648, Sept.-Oct., 1956.
- Howland, William S., Boyan, C. Paul, and Wang, Kuo Chen: "The Use of a Steriod (Viadril) as an Anesthetic Agent," *Anesthesiology*, Vol. 17, p. 1, Jan., 1956.
- Tait, Claude A., Davis, A. Davis, Grosskrentz, Doris C., and Bonniface, Kenneth J.: *Anesthesiology*, Vol. 17, p. 536, July-Aug., 1956.
- Lorhan, Paul: *Anesthesiology* (IN PRESS).
- Shaw, F. H., et. al: *Nature*, Vol. 174, p. 403, 1954.
- Löfgren, N.: "Studies on Local Anesthetics, Xylocaine, a New Synthetic Drug," Ivar Haeggströms, Stockholm, 1948.
- Griffith, H. R., and Johnson, G. E.: "The Use of Curare in General Anesthesia," *Anesthesiology*, Vol. 3, p. 418, July, 1942.
- Papper, E. M., and de Beer, E. J.: *Proceedings of the Conference on the Myoneural Junction*, Columbia University and Burroughs Wellcome & Co., Inc., November 4, 1955.
- Goodman, Louis S., and Gilman, Alfred: *The Pharmacological Basis of Therapeutics*, p.216-281, 2nd Edition, The Macmillan Co., New York, 1955.
- Shaw, F. H., and Shulman, A.: *British Medical Journal*, Vol. 1, p. 1367, 1955.
- Leigh, M. Digby and Belton, M. K.: *Pediatric Anesthesia*, The Macmillan Co., New York, N. Y., 1949.
- Adriani, John, and Griggs, Thomas: *Rebreathing in Pediatric Anesthesia: Recommendation and Description of Improvements in Apparatus*, *Anesthesiology*, Vol. 14, p. 337, July, 1953.
- Martin, Stevens J.: *Pediatric Anesthesia*, *Conn. State Med. Jour.*, Vol. 20, No. 6, p. 423, June, 1956.
- Bonica, John J.: *The Management of Pain*, Lea & Febiger, Philadelphia, Pa., 1953.
- Little, David, *Controlled Hypotension in Anesthesia and Surgery*, Chas. C. Thomas, Springfield, Ill., 1956.
- Zeavin, Irvin, Virtue, Robert W. and Swan, Henry: *Cessation of Circulation in General Hypothermia, II. Anesthetic Management*, *Anesthesiology*, Vol. 15, p. 113, May, 1954.
- Little, David M. and Stephen, C. R.: *Modern Balanced Anesthesia: A Concept*, *Anesthesiology*, Vol. 15, 246, May, 1954.
- Etsten, Benjamin: *Anesthesiology* (In press).
- Smith, Robert M.: *Fluid and Electrolyte Protein Balance in Pediatric Anesthesia*, Seventh Annual Refresher Lecture Course, p. 141, Amer. Soc. of Anes., Chicago, Ill., 1956.



30. DeGown, Elmer L., Hardin, Robert C. and Alsever, John B.: *Blood Transfusion*, W. B. Saunders Co., Philadelphia, Pa., 1949.
31. O'Brien, William A.: *The Responsibility of the Anesthesiologist to the Poliomyelitis Patient*. Seventh Annual Refresher Course Lecture, p. 121, Amer. Soc. of Anes., Chicago, Ill., 1956.
32. Martin, Stevens J.: *The Function of the Anesthesiologist as an Internist in the Operating Pavilion*, Mass. State Soc. of Anes. Program, Boston, Mass., May 18, 1954.
33. Thomas, George J.: *Fire and Explosion Hazards in Hospitals and Their Control*, Seventh Annual Refresher Course Lecture, p. 154, The Amer. Soc. of Anes., Chicago, Ill., 1956.
34. Jacoby, Jay: *Annual Report, Sub-committee on Medical Schools*, Amer. Soc. of Anes., Chicago, Ill., 1956.
35. American Board of Anesthesiology: *Personal Communication*, April, 1957.
36. Martin, Stevens J.: *Obligations in Anesthesia, General Practice (GP)*, Vol. 1, No. 2, p. 55, May, 1950.
37. American Academy of General Practice, *Personal Communication*, Feb., 1957.



## Principles of Tympanoplasty

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A changing concept has been noticeable in the past few years regarding the treatment of a patient with chronic otitis media. Earlier the prevention of the well known complications of otitis media were considered paramount and the radical mastoidectomy was the operation of choice. With anti-biotics more conservatism became apparent with the operation called the Modified Radical Mastoidectomy until now with experience gained in magnification surgery (Stapes Mobilization, Fenestration). Much more emphasis is being placed on the restoration of the hearing defect in the operation named Tympanoplasty. In addition to the hearing improvement the aim is also to eliminate the ever present threat of middle ear flare ups by closing the external entrance to the middle ear space.

Technically the problems are variable and may be multiple in a single ear. In the selection of cases several things must be kept in mind.

1. The peripheral and central nerve pathways must be good enough to warrant an attempt to bring air conduction to within the bone conduction range.

2. The eustachian tube must be patent in order for the round window to be included in a sealed tympanic space connected with a functioning eustachian tube.

3. Whether or not the middle ear mucosa is in a state where reversibility to a normal functioning membrane can be expected. Otherwise the tympanic air space will be obliterated.

4. Later complications must be prevented. One would therefore not leave bits of squamous epithelium within a closed space.

Wullstien has classified these cases into five categories which represent the end surgical result and has shown that any type of middle ear pathology would fall into one of the five diagrams which he presents in his paper. This seems to be an excellent scheme for one to diagram on paper just what he expects to get after definitive surgery.

House's suggested clinical classification into A and B cases is easy to follow and allows one to have a good presurgery concept of routes to follow in any given case. Class A cases are those with a dry or mucoid central or marginal perforation without active infection and that show a practical hearing gain after applying a patch. These may be handled through the ear canal. In the instance of bulging of the anterior wall the bulge can be partially removed with a sharp curette including the overlying skin. This then gives the necessary exposure for work on the outer drum layer. Using a chalazion curette or sickle knife and going at least three milli-

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meters away from the perforation the outer layer of epithelium is then removed leaving a raw drum surface to which a thin full thickness skin graft from the auricular fold is placed. In the case of a similar perforation involving the margin it becomes necessary to denude the skin and annular ring in addition. If a stapes type incision is made this will allow further approximation of the perforation edges before applying the skin graft by allowing the midportion of the elevated skin to fold down to the perforation. The graft is held in place with an antibiotic coated cotton ball and removed after about one week. Type B cases include those cases in which the perforation is too large to do a patch test and those in which the middle ear pathology would obviate simple skin graft patching. Here the endural mastoid incision is made with exposure of the short process of the incus leaving intact a large portion of the posterior canal wall until the nature of the middle ear pathology can be determined by direct vision into the tympanum. If there is not middle ear pathology it may be possible to save the patient the inconvenience of a post operative mastoid bowl. If skin grafting is done in cases of large perforation it may be wise to freshen the promontory to use as a vascular bed. If the ossicular chain is intact and the tympanic pathology can be removed then the bridge is thinned anteriorly and posteriorly but left as support for the tympano meatal flap which is layed back into the epitympanum and antrum. In marginal perforations it may be necessary to remove the flap and use a large skin graft. Where the ossicular chain is interrupted (cholesteatoma, necrosis, severe dislocations) the bridge, incus and malleus are removed and the facial ridge is lowered to just above the pyramidal eminence. This causes the capitulum of the stapes to occupy a relatively higher position. The drum is draped over the freshened head of the stapes and the promontory used as a source of blood supply. If the stapes foot plate is all that remains and is mobile the graft is layed directly on top of the foot plate. If the stapes is fixed some authors do not recommend attempting to mobilize it under general anesthesia for fear of severe annu-

lar tear and labyrinthitis but rather make a fenestration in the lateral semicircular canal and lay a graft over the new opening. If the round window is covered and an attempt to dissect granulation tissue or adhesions should be made. Wullstien uses amnion to make a new round window membrane and even fenestrates in some cases to create a new round window. Where there is a foul draining ear, either a one or two stage procedure can be considered. In any event it is important to leave the annulus present and the eustachian tube open with the prospect of returning later for skin grafting and closure of the middle ear space.

#### CONCLUSIONS

1. It appears that the otolaryngologist has something very worthwhile to offer the patient who in the past has found it necessary to go through life constantly guarding against middle ear flare ups and suffering the handicap of hearing loss.
2. The operation called Tympanoplasty is in the early stages and much interesting work is being done at the present. With the prospect of new developments occurring all of the time.
3. The results are good thus far depending upon the case and from the patients' standpoint does not involve prolonged periods of hospitalization.

WRIGHT, WILLIAM K.

"Repair of Chronic Central Perforations of the Tympanic Membrane; by Repeated Acid Caustery; by Skin Grafting." *Laryngoscope* 65; 1464-1487, November 1956.

HOUSE, H. P.

"Surgical Repair of the Perforated Ear Drum." *Annals of Otology, Rhinology, and Laryngology*. 62 (p. 1072, December 1953).

HOUSE, H. P.

"Management of Congenital Ear Canal Atresia." *Laryngoscope*, Vol. 63, No. 10, pp. 916-946, October 1953.

BARON, S. H.

"Conservation of Hearing in the Modified Radical Mastoidectomy." *Laryngoscope* Vol. 64, p. 365-402. 1954.

GUILFORD, FRED R., WRIGHT, WILLIAM K.

"Secondary Skin Grafting and Fenestration in Mastoid Cavities." *Laryngoscope* Vol. 64, p. 626-631, 1954.

BUDETTI, J. A., SEYDEL, E. M.

"Journal of the Kansas Medical Society." July 1955, Vol. 56, No. 7.



SCHRIMPE, WILLIAM J.

"Repair of Tympanic Membrane Perforations with Human Amniotic Membrane." *Annals of Otology, Rhinology, and Laryngology* Vol. 63, March 1954, p. 101 to 115.

SHIYI, GOTO

"Primary Split Thickness Skin Grafting Radical Mastoid Cavities and Restoration of Hearing." *Annals of Otology, Rhinology, and Laryngology* p. 1037-1045, Vol. 64, 1955.

SHIYI, GOTO

"Mobility of the Stapes in Chronic Middle Ear

Suppuration." *Annals of Otology, Rhinology, and Laryngology* Vol. 65, p. 92 to 97, March 1956.

WULLSTIEN, HORST

"The Restoration of the Function of the Middle Ear in Chronic Otitis Media." *Annals of Otology, Rhinology, and Laryngology* December of 1956, Vol. 65, p. 1020 to 1041.

HOUSE, H. P.

Personal Communication.

## ◆ *What's* NEW ◆

### Orthopedics

WM. L. STEELE, M. D.\*

This year's meeting of the American Academy of Orthopaedic Surgeons presented many interesting exhibits and papers. This meeting included the session for the American Society for the Hand.

Trends in treatment in hand disorders still, of course, use the same basic principles. Certain groups of paralytic hand disorders were being treated, however, with tenodeses of the tendons in an effort to avoid fusion of the wrist. These were possible only in the presence of a mobile wrist and fingers and with active forearm supination. Tendon grafts in children were reviewed and they were found to offer a much better prognosis than in adults, which would be expected. The overall surgical procedures of the hand seem to provide better function between the ages of seven and fourteen, since the propensity for scar tissue was diminished and yet cooperation for rehabilitation was best at these ages.

Collagen diseases involving the upper extremities were discussed. The basic pathological process was thought to be one of necrotizing angitis, with an increase in the excretory level of homogenetic acid.

The exhibits presented many new facts about old basic problems.

Sickle Cell Anemia was found to manifest itself bilaterally on the extremity. The Metabi-sulphite test was the most accurate laboratory test recommended. Surgical procedures, when necessary, were said to be best performed under high oxygen concentration, and children should be checked carefully during the growing years for growth disturbance.

In osteoporosis a step-cut wedge of ivory was x-rayed at the same time that the bones of the hand were x-rayed and by photometric measurements any change in the bone density was detected. This eliminated the variance which might result from differences in exposure and development of the film.

Congenital absence of the fibula was found to have a passive deforming element, which consisted of a taut band of fibrous tissue occupying the course of the undeveloped fibula. Section of this band was recommended early to prevent the bending tendency in these limbs. Section of this band made the limb more apt for fitting with a prosthesis.

Anatomical specimens of the cervical spine were presented, which showed that

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the foraminal narrowing associated with degenerative arthritic changes demonstrated lack of relation of the nucleus pulposus to cervical root pain. While observing these specimens, which were cut in many planes, it was surprising to see how far away the substance of the nucleus pulposus was from the nerve root. Renewed interest in the points of contact of the vertebral bodies laterally was brought out and the separate joint was demonstrated. This joint (joint of Luschka) is the most prominent site of osteophyte formation and is intimately related to the nerve roots.

Necrosis of the femoral head following femoral neck fracture was thought to be minimized by a good grade of reduction and stability of the fixant.

Various advocates of spine fusion technique were present, each vying with each other for dogmatism and disciples. One method which mechanically seemed quite sound was a blocking type of fusion procedure, using an oscillating circular saw, which cut a bone plug and this plug being replaced in recipient holes laterally and in the midline for the points of fusion.

Joint lesions attributable to diabetes were described and it was felt that the changes were due to degeneration in the cord rather than to lesions in the peripheral nerves.

Brucellosis in experimental animals showed the osseous involvement to be predominantly in the spinal column, which not only involves the vertebral body, but the interspace as well.

One author from Australia demonstrated a method of handling delayed unions of fractures of the tibia. The non-union was freshened and telescoped and then held in compression by Kirschner wires above and below the fracture. These strands were held taut by an extra large Kirschner bow. They were then incorporated in the plaster.

The "gadget department" was, of course, very fascinating. The emphasis on power tools was quite heavy and small power units to cut precision dowels and grafts from bone were featured.

A new method of hip fusion was shown, using a long nail which was inserted through a jig. The course of the nail extended from the posterior iliac spine through the medullary space of the ilium, across the acetabulum and hip joint, curving into the femoral neck and eventually into the medullary canal of the femur. The x-rays of the nail in position were quite startling and the results described were effective in all ten cases present.

The use of a mattress maker's needle was presented as being useful for passing tendon through bone holes, due to its curve and particularly large eyelet.

It was shown that an ordinary rubber crutch tip, split four ways vertically and flattened, when applied to a lower extremity cast, makes a serviceable and cheap walking heel.

Metal products of Vitallim are now available in many more forms due to a newer process being developed by metallurgists.

Surgeon's gloves with curved fingers are being made to avoid finger fatigue.

An automatic color camera of great versatility was shown. This camera was designed to photograph surface areas from 1-1 closeups to half body sizes. This camera can photograph all body cavities and also photographs printed texts with great clarity.

A dustless cast cutter was featured which consisted of a Stryker cast saw, to which a vacuum attachment was fastened. This attachment prevents the plaster dust from sifting about the office. It can also be detached from the saw and used to vacuum the office.



**A TEACHING SEMINAR**  
**FROM THE**  
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## Clinical Studies of Lung Function in Secondary Polycythemia

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An improved understanding of the physiological nature of pulmonary diseases has stimulated the widespread clinical use of lung function studies. The purpose of this report is to indicate some of the ways in which these procedures may be of value. A brief discussion of the relevant terminology and certain basic principles is followed by the presentation of two patients with secondary polycythemia. The patients present different causative mechanisms for the arterial hypoxia which was observed.

The nomenclature is that recommended as standard by a committee of physiologists (1) in 1950. There are four primary lung volumes. These are, the inspiratory reserve volume, tidal volume, expiratory reserve volume and the residual volume. They are to be distinguished from the four lung capacities. The total lung capacity includes all four lung volumes, while the vital capacity includes all except the residual volume. Pulmonary midcapacity is that level of lung inflation which follows a quiet expiratory motion. It separates the inspiratory reserve capacity from the functional residual capacity (see Fig. 1). The functional residual capacity is of major importance as the volume of air which supplies oxygen to the blood and receives carbon dioxide from the blood. It is constantly replenished by that portion of the tidal volume which enters the alveoli.

The simplest, most direct test of pulmonary function is the vital capacity. It is determined by measuring the largest possible respiratory excursion. Since a maximal effort is necessary for accuracy, the patient must be vigorously encouraged to perform. The vital capacity is remarkably constant during health. It decreases

somewhat as one assumes the supine from the upright position and tends to decrease with advancing age. Certain obvious conditions interfere with the vital capacity including pleuritis, pneumothorax, injuries of the chest wall and asthma.

Measurement of the vital capacity is helpful in patients with congestive heart failure irrespective of etiologic type. Peabody and Wentworth (2) reported a relationship between the severity of dyspnea and the reduction of vital capacity in such patients forty years ago. Christie and Meakins (3) noted that patients with congestive heart failure had a greater change in intrathoracic pressure for a given tidal volume than normal persons. This reflects the decreased pulmonary compliance, or increased rigidity of the lungs. It has been shown that the diminution of pulmonary compliance in congestive heart failure correlates in a linear manner with the reduction in vital capacity (4). This relationship enhances the value of the vital capacity determination in these patients.

The exact cause of decreased pulmonary compliance in congestive heart failure is not completely understood. It is apparent that the changes in pulmonary compliance do not result primarily from increases of airway resistance, pulmonary blood volume, pulmonary artery pressure or pulmonary arteriolar resistance. Saxton and associates (5) found a "suggestive" relationship between reduced pulmonary compliance and increased pulmonary capillary pressure by studying patients with congestive heart failure during exercise. This finding does not permit the conclusion that pulmonary capillary pressure is the most important factor influencing

compliance. It does appear to be of some importance, however. One wonders whether interstitial pulmonary edema, or fluid in the alveoli may not be of equal, or even greater importance. It is probable that the decreased compliance is a direct cause of the reduction in vital capacity, although even this, has not been proven conclusively. It should be pointed out that the work of breathing increases as pulmonary compliance decreases. Thus, the patient with congestive heart failure must expend more than a normal amount of energy to maintain a given level of lung ventilation. This seems like an unfortunate burden to impose on the limited reserves of the patient with heart failure.

The vital capacity in obstructive pulmonary emphysema may approach normal. As a general rule, when pulmonary insufficiency is present, the vital capacity is reduced. One consistent abnormality in pulmonary emphysema, however, is a marked reduction in the maximum rate of expiratory air flow. This results from an abnormal resistance to air flow in the bronchial tree. Factors which reduce the intraluminal diameter of the bronchioles and smaller bronchi increase airway resistance. In asthma, the increased resistance presumably results from the accumulation of secretions and spasm of the bronchial musculature. In emphysema, however, the mechanism is quite different. The smallest airways are completely unsupported by cartilage, and hence, depend upon the elastic properties of the lungs to maintain their patency. A marked loss of the elastic properties of the lungs permits the trapping of air during expiration. This markedly decreases the rate of expiratory air flow. A comprehensive analysis of the mechanics of ventilation in pulmonary emphysema has been presented by Fry, Ebert, Stead, and Brown (6). The velocity of air flow is most directly assessed by measuring the timed one second flow as a fraction of the total vital capacity, or by measuring the maximum breathing capacity. Inexpensive equipment, which is simple to operate, can be obtained commercially for either purpose.\* The physician who makes a habit of measuring the vital capacity himself, soon finds it possible to estimate roughly the velocity of expiratory air flow. This

can be done with an ordinary vitalometer.\*\* Thus, it is evident that not only is the size of the vital capacity important, but also the manner in which it is accomplished by the patient.

One might wonder whether this is not an overemphasis on the value of the vital capacity. It can be said that a markedly reduced pulmonary compliance is reflected by a reduction in the size of the vital capacity. Furthermore, a markedly increased airway resistance is reflected by a slow rate of air flow during the performance of the vital capacity. This in no way provides an exact measurement of either pulmonary compliance or airway resistance, but forms the basis for a clinical concept which is believed to be quite useful.

Two methods are in general use for the determination of functional residual capacity. Only the principles of the methods will be presented. The "open circuit" or nitrogen dilution technic (7) consists of washing the nitrogen from the lungs by having the subject breathe pure oxygen. The total volume expired is collected for seven minutes and analyzed for nitrogen concentration. One obtains the functional residual capacity by simply multiplying this fractional nitrogen concentration by the volume of gas collected and applying certain corrections. One important correction is the concentration of nitrogen remaining in alveolar air at the end of the test. This value is called the index of intrapulmonary mixing. It is not a sensitive measure of abnormal distribution of inspired gas, but it is useful. Normally it is less than 2.5 per cent.

The "closed circuit" technic (8) provides for the equilibration of a foreign gas with a low solubility in blood. A volume of helium is admitted to a spirometer with sufficient oxygen to sustain metabolism during the test period. By re-breathing, the helium is mixed. At the end of the test, the helium concentration is the same in the subject's lungs and in the spirometer. Analysis for helium when corrected for dead space in the spirometer, and oxygen consumption during the test period, yields a simple measure

\* Warren E. Collins, Inc., 555 Huntington Ave., Boston 15, Mass.

\*\* McKesson-Scott Apparatus McKesson Appliance Co., Toledo, Ohio



of the functional residual capacity. It should be mentioned that considerable variation occurs in the level of lung inflation during quiet breathing which makes it essential to measure the expiratory reserve volume immediately prior to either type of procedure.

Gaseous exchange in the lungs is controlled by the physical process of diffusion. The partial pressure gradients of oxygen and carbon dioxide between the blood in the pulmonary capillaries and the gas in the alveoli are of primary importance. The maintenance of adequate circulation and adequate alveolar ventilation is, obviously, equally important. Equilibration of blood with alveolar air must occur during the estimated three-fourths of a second which the red blood cell is in the alveolar capillary. The high solubility of carbon dioxide permits the attainment of virtually complete equilibration during this brief period. Thus, for practical purposes systemic arterial blood contains the same partial pressure of carbon dioxide as does alveolar air. Oxygen is less soluble, however, and does not reach equilibrium. Although the hemoglobin in systemic arterial blood is 97 per cent saturated with oxygen, the oxygen tension of the blood is about 10 mm Hg. less than that found in alveolar air.

#### CASE I

A 53 year old white male Unit No. (11-61-90) reported to the Out-Patient Clinic complaining of throbbing occipital headaches of 14 months duration. He stated that he had always had a "ruddy" complexion, but this gradually had become more intense over the six years prior to admission. For fifteen years he had experienced severe attacks of asthma two or three times a year. These lasted 24 to 48 hours. He also complained of a troublesome chronic cough and produced a moderate amount of yellowish sputum. He had noted epigastric pain aggravated by exertion and fatty foods. He found that "Tums" would relieve this discomfort. In December 1955 he had one episode of melena.

On physical examination, cyanosis was noted. His blood pressure was 138-84. All mucous membranes appeared markedly hyperemic. Examination of the chest

revealed a few scattered coarse rhonchi and fine rales bilaterally. No heart murmurs were noted. Moderate right upper quadrant tenderness was present on abdominal examination although no organs or masses were felt. The neurological examination was normal. The tentative diagnoses, on admission to the hospital were, peptic ulcer, asthma, chronic bronchitis and possibly polycythemia vera.

Laboratory work revealed, RBC 7.31 million per cu. mm., Hgb. 20.76 gms. per cent, Hct. 58 per cent, platelet count was 86,000 per cu. mm., WBC 7,950 per cu. mm., and differential count was normal. The urinalysis was normal. An electrocardiogram showed right axis deviation. Chest x-ray was interpreted as revealing increased hilar shadows and vascular markings in the lungs. The heart was normal in size. Upper gastrointestinal series revealed marked scarring of the duodenal bulb, and possibly an ulcer niche in the immediate "post-bulbar" area.

The results of pulmonary function studies are noted in Table 1 and in column two of Figure 2. The total lung capacity was normal although the vital capacity was moderately reduced. Thus, the ratio of residual volume to total lung capacity is increased to 53 per cent. The alveolar air contained 5.7 per cent nitrogen after seven minutes oxygen breathing. The maximum breathing capacity was markedly reduced at 32 liters per minute. A striking reduction of the timed one second vital capacity was noted (37 per cent of total vital capacity). All of these features are compatible with the diagnosis of pulmonary emphysema. The presence of pulmonary insufficiency is indicated by the elevation of arterial  $p\text{CO}_2$  to 70 mm Hg. A marked degree of arterial oxygen unsaturation was also present.

The patient was taking amodrine and potassium iodide when first seen. He was given a progressive Sippy diet in the hospital and antacid therapy between meals and at bedtime. Because he produced a volume of purulent sputum (30 cc one day), he was given a seven day course of 1.2 million units of aqueous crystallin penicillin, intramuscularly, daily.

It is clear that alveolar hypoventilation existed in this patient. It is equally clear

that he had severe pulmonary emphysema. The degree of polycythemia which he presented is decidedly unusual in pulmonary emphysema uncomplicated by heart failure. The absence of leukocytosis, thrombocytosis and splenomegaly makes the diagnosis of polycythemia vera untenable. It is perhaps difficult to completely exclude the remote possibility that polycythemia vera might rarely occur by chance in a patient with pulmonary insufficiency. There is no evidence to suggest this, however, in the patient discussed. Of passing interest, is the recent report that patients with pulmonary emphysema have peptic ulcer more frequently than a general hospital population (9).

#### CASE II

A 41 year old white male (V. A. H. Number 28036) was admitted to the Little Rock Veteran's Administration Hospital complaining of severe dyspnea and ankle edema. He weighed 170 pounds in 1932 and 350 pounds in 1953. He stated he was a "big" eater and had gradually gained weight for about ten years prior to admission. For several months he had noted increasing ankle edema and dyspnea. He also noted burning and redness of his eyes, and marked somnolence. Occasionally, he would drop off to sleep during a conversation.

On physical examination he was 67 inches tall and weighed 425 pounds. The conjunctivae were markedly injected. Blood pressure was 200-130. Examination of the heart and lungs was difficult because of the obesity. There was moderate pitting ankle edema bilaterally.

Laboratory work revealed white blood count 8,600 per cu. mm. with a normal differential count. Red blood cells were 7,800,000 per cu. mm., hemoglobin was 19.1 grams per 100 cc., and hematocrit was 66 per cent. Urinalysis revealed a 3 plus proteinuria, but otherwise was not abnormal. Phenolsulfonphthalin test was 39 per cent excreted in the first fifteen minutes. Fasting blood sugar and serum proteins were within normal range.

The results of pulmonary function studies are noted in Table 1 and in column three of Figure 2. The total lung capacity is reduced. The expiratory reserve volume is extremely small, accounting for

the reduction in vital capacity. The ratio of residual volume to total lung capacity approaches normal. The index of intrapulmonary mixing is within normal limits. The relatively normal maximum breathing capacity indicates that resistance to air flow was not markedly increased. Arterial  $p\text{CO}_2$  was normal at a time when hemoglobin oxygen saturation was moderately reduced and hematocrit was 71 per cent. It should be noted that these studies were not performed until nine days after admission. At this time the patient had lost twenty pounds in weight and was subjectively much improved.

The patient was given an 800 calorie diet, and rest was advised. Shortly after admission typical Cheyne-Stokes respiration was noted during sleep by several examiners. Multiple phlebotomies caused a reduction in the hematocrit to 50 per cent. An electrocardiogram revealed right axis deviation. Specific drug therapy for heart failure was not administered. The proteinuria persisted for three months, and was not noted subsequently. On one occasion he fell asleep while an arterial puncture was being performed on him.

The illness which this patient presented has been recognized only recently as a clinical syndrome. It has been called either the polycythemia of obesity, or the "Pickwickian syndrome." The latter because of a description by Charles Dickens in his *Pickwick papers*. Most of the features presented by this patient are typical, including extreme obesity, congestive heart failure, right axis deviation on the electrocardiogram, somnolence, polycythemia, Cheyne-Stokes breathing and cyanosis. In addition, this patient had conjunctivitis, and hypertension. His blood pressure approached normal shortly after admission.

Inadequate alveolar ventilation is the mechanism usually considered responsible for the marked arterial hypoxia in these subjects (10, 11). This can be demonstrated by measuring directly the minute volume of ventilation, and by determining the arterial  $p\text{CO}_2$ . Ventilation is reduced and the  $p\text{CO}_2$  is increased. A reduction in ventilation exerts a more profound effect on arterial oxygen content because the functional residual capacity is



reduced in the face of a markedly increased oxygen consumption (12). Resting oxygen consumption was 479 ml/min. in this patient while the functional residual capacity was only 1,568 ml. Sieker (12) noted that short periods of breath holding resulted in marked diminution of arterial oxygen saturation in his subjects. The arterial hypoxia stimulates the development of polycythemia.

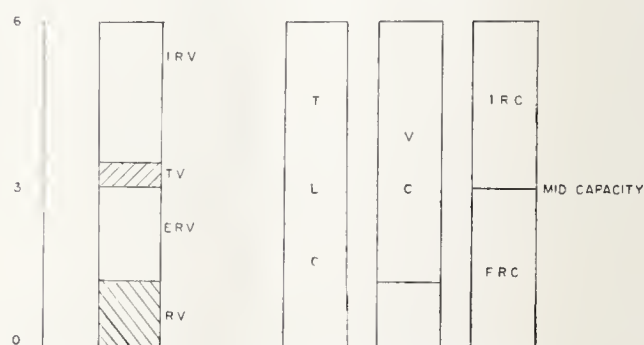
The findings in the present patient exclude alveolar hypoventilation as the cause of the observed arterial oxygen unsaturation. Alveolar ventilation was adequate, and arterial pCO<sub>2</sub> was normal at a time when unsaturation existed. It seems possible that the nine days which elapsed between hospital admission and the performance of lung function studies may be significant. If the observed findings in the present patient are a result of partial recovery from illness, they are still of interest. One might expect that if alveolar hypoventilation were the only cause of arterial unsaturation in these subjects, a return to adequate ventilation would result in complete hemoglobin saturation. This was not the case.

After breathing oxygen for twenty minutes, an incomplete oxygen saturation of arterial hemoglobin was noted. This suggested a disturbance of the ventilation-perfusion relationships in certain parts of the lungs with the passage of right heart (Venous) blood into the arterial circulation without adequate equilibration with alveolar air. This shunting must occur in regions of the lung with poorly ventilated alveoli. It is safe to conclude that alveolar hypoventilation is not necessarily the major cause of arterial oxygen unsaturation in these patients during recovery. Additional studies are indicated.

It is established that a reduction in body weight causes a complete reversal of the physiologic disturbances in these subjects. This clearly points toward a restricted caloric intake as the primary therapy. The administration of digitalis was not considered necessary in the present patient as he improved rapidly without it. The cardiac output in these subjects, even during congestive heart failure, is normal or slightly elevated. In this situation, one might anticipate that the results of digi-

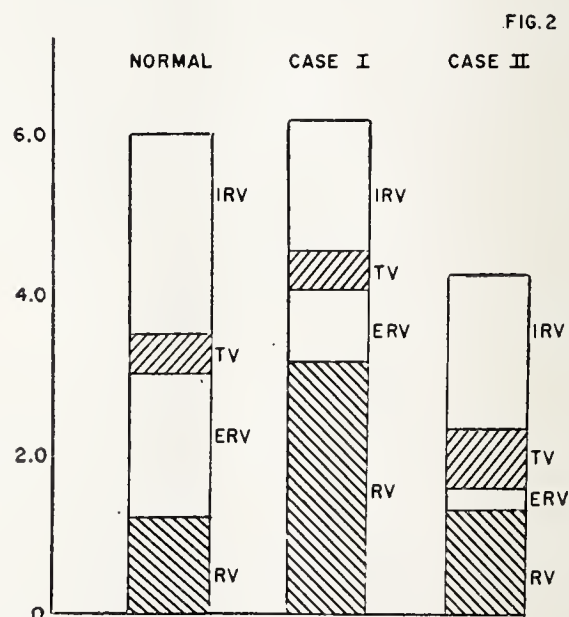
tal administration would be less dramatic than in other forms of congestive heart failure when the cardiac output is markedly reduced.

Legend for Figures and Tables



Legend Fig. I The lung compartments.

The vertical axis is liters of gas. IRV=inspiratory reserve volume. TV=tidal volume, ERV=expiratory reserve volume, RV=residual volume. TLC=total lung capacity, VC=vital capacity, IRC=inspiratory reserve capacity, FRC=functional residual capacity.



Legend Fig. II Lung volumes.

The left hand column estimates normal. The middle column graphically represents Case I. The right hand column represents Case II.

CLINICAL STUDIES OF LUNG FUNCTION IN SECONDARY POLYCYTHEMIA

Legend Table I. Lung function studies.

TABLE I

	Normal	Case I	Case II
Insp. Res. Capacity, ml.	3000	1948	2662
Exp. Res. volume, ml.	1800	886	266
Residual volume, ml.	1200	3183	1304
Vital capacity, ml.	4800	2834	2928
Total lung capacity, ml.	6000	6017	4232
RV/TLC ratio, %	20	53	31
Alveolar ventilation, Liters/min.	4.2	6.1	8.1
Index intrapulmonary mixing %	2.5	5.7	1.5
Maximum breathing Cap. Liters/min.	150±30	32	90
Arterial oxygen saturation %	97	75	83
Arterial pCO <sub>2</sub> mm Hg	40	70	39

Bibliography

1. Pappenheimer, J., et. al: Standardization of definitions and symbols in respiratory physiology, Federation Proc. 9:602, 1950.

2. Peabody, F. W., and Wentworth, J. A.: Clinical studies of the respiration IV. The vital capacity of lungs and its relation to dyspnea. Arch. Int. Med. 20:443, 1917.

3. Christie, R. V., and Meakins, J. C.: The intrapleural pressure in congestive heart failure and its clinical significance. J. Clin. Invest. 13:323, 1934.

4. Brown, C. C., Jr., Fry, D. L., and Ebert, R. V.: The mechanics of pulmonary ventilation in

patients with heart disease. Am. J. Med. 17:438, Oct. 1954.

5. Saxton, G. A., Rabinowitz, M., Dexter, L., Haynes, F., and Walker C.: The relationship of pulmonary compliance to pulmonary vascular pressures in patients with heart disease. J. Clin. Invest. 35:611, June 1956.

6. Fry, D. L., Ebert, R. V., Stead, W. W., and Brown, C. C.: The mechanics of pulmonary ventilation in normal subjects and in patients with emphysema. Am. J. Med. 16:80, 1954.

7. Baldwin, E. de F., Cournand, A., and Richards, D. W., Jr.: Pulmonary insufficiency I. Methods of analysis, physiologic classification, standard values in normal subjects. Medicine 27:243, 1948.

8. Meneely, G. R., and Kaltreider, N. L.: Volume of the lung determined by helium dilution. J. Clin. Invest. 28:129, 1949.

9. Latts, E. M., Cummins, J. F., and Zieve, L.: Peptic ulcer and pulmonary emphysema. Arch. Int. Med. 97:576, May 1956.

10. Auchincloss, J. H., Cook, E., and Renzetti, A. D.: Clinical and physiological aspects of a case of obesity, polycythemia and alveolar hypoventilation. J. Clin. Invest. 34:1537, Oct. 1955.

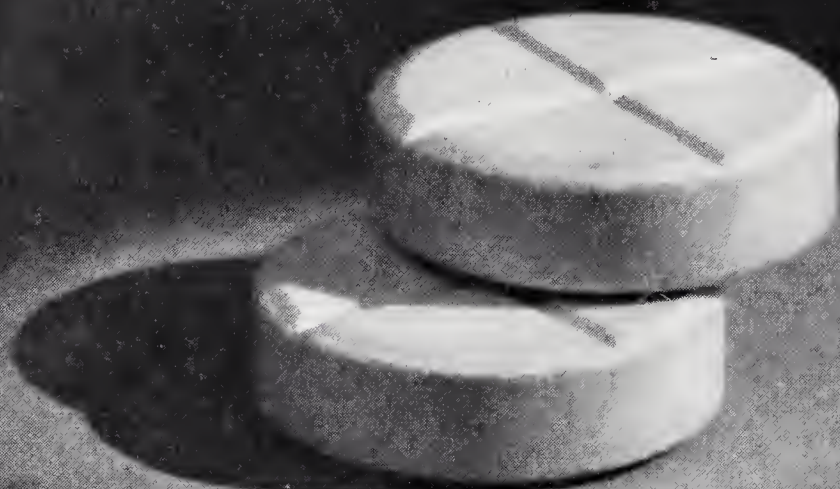
11. Weil, Max H.: Polycythemia associated with obesity. J. A. M. A. 159:1592, Dec. 24, 1955.

12. Sieker, H. O., Estes, E. H., Jr., Kelser, G. S., and McIntosh, H. D.: A cardiopulmonary syndrome associated with extreme obesity, J. Clin. Invest. 34:916, 1955.



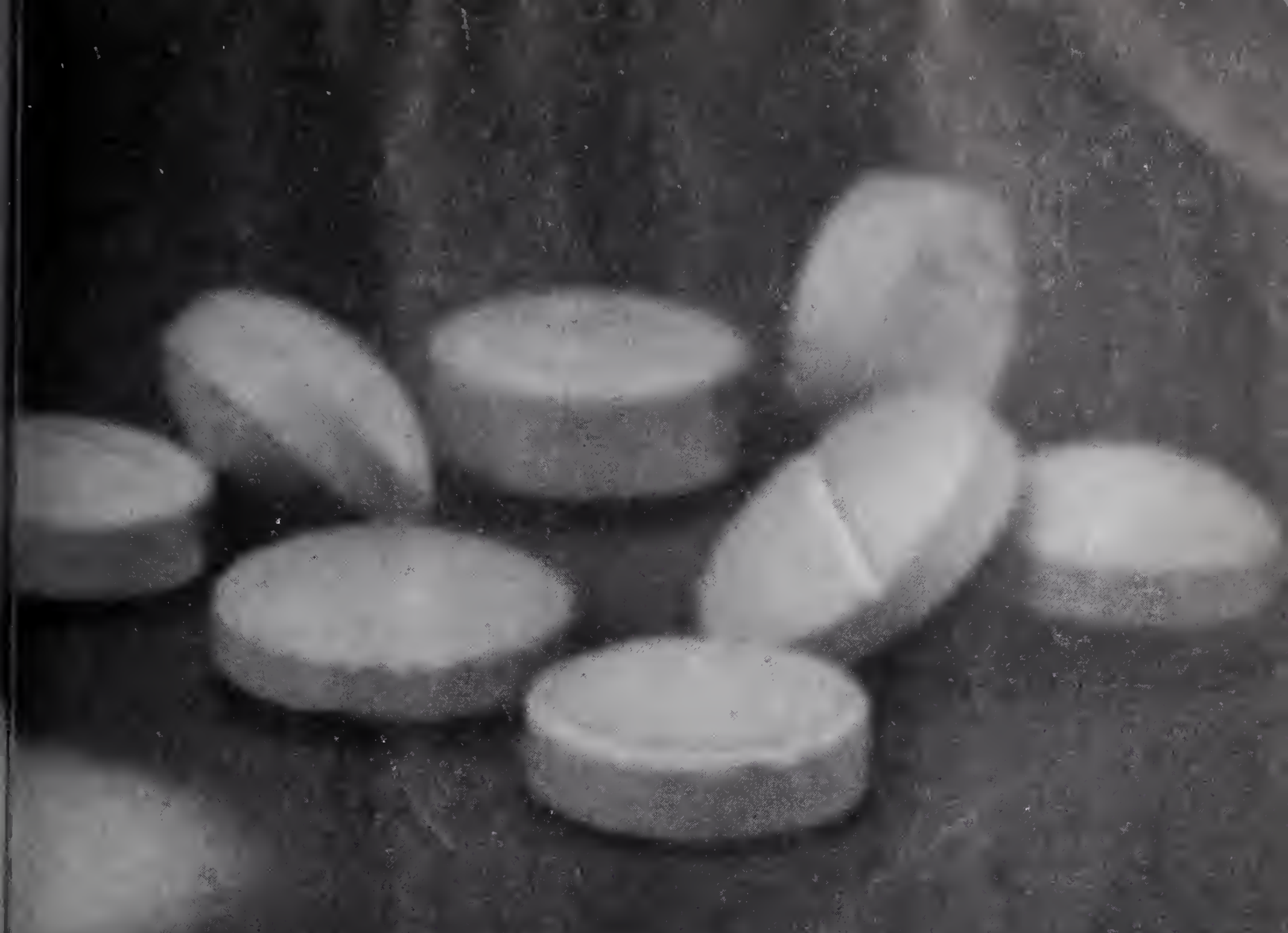


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**CONVENIENCE**—the low maintenance dosage of 1 Gm. (2 tablets) per day for the average adult offers optimal convenience and acceptance to patients.

**TABLETS:** Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100.

**SYRUP:** Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

(1) Boger, W. P.; Strickland, C. S. and Gylfe, J. M.: *Antibiot. Med. & Clin. Ther.* 3:378 (Nov.) 1956.

\*Reg. U.S. Pat. Off.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK





KNOWN CASES OF TUBERCULOSIS  
AS OF DECEMBER 31, 1956\*  
*number in parenthesis is prevalence rate/10,000 pop*



The distribution of these known cases is shown in the accompanying map by county of residence. With only 2 exceptions

This then is the picture of the problem as it exists today, pointing vividly to the need all over the state for physicians willing — and able — to assist in the care of the tuberculous sick.

THE JOURNAL OF THE ARKANSAS MEDICAL SOCIETY

# "The New York AMA Meeting"

R. B. ROBINS, M. D.\*

The greatest medical show on earth took place at the annual session of the American Medical Association in New York City June 3-7. An army of over 55,000 people (about half of them doctors — representing one out of every ten practicing physicians in the United States) came to New York in connection with this grandiose convention. The prominent subjects considered were heart disease, nutrition, smoking and ethics.

We in Arkansas should be very proud of the fine contribution made by Arkansas citizens to this meeting. Congressman Oren Harris, Chairman of the House Interstate and Foreign Commerce Committee, which considers all health legislation in Congress, made a very impressive talk to the Conference of Presidents and other State Officers on "The Third Party in Medicine." This conference was attended by most members of the House of Delegates and other leaders in American medicine. Arkansas physicians attending this conference were very proud of our Congressman Harris.

All of us from Arkansas were extremely proud of Dr. Sam Jameson of El Dorado who received the John H. Morrissey Award for the most outstanding urological scientific exhibit at the convention. Exhibits in this section were presented by Cornell University, Columbia University, the Cleveland Clinic and by many other prominent institutions and individual urologists. It was indeed an honor for Dr. Jameson and the state of Arkansas to have him receive this noted Award. His exhibit was on "Pediatric Urology" with the presentation of numerous unusual pediatric urological cases in a concise manner by x-rays, color transparencies

and legends. The exhibit illustrated how good urology can be practiced in the smaller communities.

A wide variety of subjects were considered and acted upon by the House of Delegates of the AMA. A short, revised, 10-point new Principles of Medical Ethics was adopted. Instead of having the old code which consisted of some 5,000 words, we now have a brief new code of some 500 words.

The Arkansas delegates were amazed that New York and Connecticut introduced resolutions favoring compulsory inclusion of physicians in the federal Social Security system, but the House reaffirmed its opposition to compulsory coverage of physicians. It was generally felt that many physicians are not properly informed about social security and so the House of Delegates recommended a strongly stepped-up informational program of education explaining the reasons why physicians should not be included under Social Security. The House reaffirmed its support of the Jenkins-Keogh Bills.

Dr. David B. Allman of Atlantic City, N. J., was installed as president and Dr. Gunnar Gundersen of La Crosse, Wis., was chosen president-elect. New blood was injected into the Board of Trustees by the election of four new members. It has been many years since four new members were elected in the same year. The four new members of the Board are Drs. George M. Fister, Utah; Cleon A. Nafe, Indiana; James Z. Appel, Pennsylvania; and Raymond M. McKeown, Oregon.

There is a rumor that very likely there will be a vacancy on the Board from our section of the country within the next year.

\*Camden, Ark.



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## Medicine in the News

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### Chamber Suggests Limited Action On Welfare, Pension Plans

Differing from earlier proposals that all plans be affected, the U. S. Chamber of Commerce is advocating that Congress require annual reports of only union-management welfare and pension funds. And the reports would be made just to participants of plans. The chamber position was outlined to a Senate Labor subcommittee headed by Senator John Kennedy (D., Mass.) on June 18. Pending bills would require managers of joint plans to register with the government, and to make annual reports to some agency of government. Sentiment in both the House and Senate is growing for bringing in all types of welfare and pension plans, including union-health plans.

### Bennett Urges Basic Safety Standards for Autos

The subcommittee holding extensive hearings on traffic safety problems has heard from Rep. Bennett (D., Fla.) on his bill for compulsory minimum safety standards for automobiles. They would include speed capacity, safety padding, steering controls, lights, visibility aids and other equipment. He told the House Interstate subcommittee headed by Rep. Roberts (D., Ala.) that it was "totally unrealistic to expect effective self-regulation in this field, despite the obvious desire of most manufacturers to make their products safe."

### PHS Making Health Needs Study in Rural Areas, Starting in Colorado

The Public Health Service is making an extensive study of health needs in sparsely settled rural areas starting July 1. PHS gives this explanation: "The study is designed to help develop more effective and economical methods of bringing modern public health services to people in the less populous areas of the country." Starting point is Kit Carson County, Colo., and it will be extended later to other counties in the Great Plains.

### Arkansas Council for the Handicapped

The Arkansas Council for the Handicapped was organized May 30, 1957. Dr. A. R. Shands, Jr., Medical Director of the Nemours Foundation spoke on the aims, possible programs, and scope of this council. The purpose of this council is to be a clearing house to ascertain and disseminate the facts regarding the handicapped in the state. It will endeavor to promote closer cooperation among the agencies and groups concerned with the handicapped, also to sponsor special studies of particular problems.

### AMA Challenges Claim of High Civilian Medicare Costs

Claims of military officials to the House Appropriations Committee that care of dependents in military facilities is substantially less costly than in civilian hospitals has been challenged by the American Medical Association in testimony to a Senate Appropriations subcommittee. Witness for the AMA was Dr. Hugh Hussey, a trustee of the association and professor of medicine at Georgetown University.

The issue came to a head when the House Committee, accepting Navy witnesses' information as accurate, recommended the Defense Department require dependents of military personnel to use military hospitals so long as such facilities are deemed adequate by Defense. This elimination of free choice, Dr. Hussey testified, may bring about a major change in the law and may have "undesirable consequences." Accordingly, he urged the Senate committee to write language negating the House Committee recommendation.

### Administration Health Insurance Bill For Federal Workers Introduced

After months of study and reworking, the administration's bill for contributory health insurance for federal civilian employees and their dependents has been introduced in Congress. Unlike the 1956 version which was only for major medical coverage, the new bill provides both basic and major coverage. To get government contributions, workers would have to take both major and basic cover-

age. The Civil Service Commission estimates about 1.8 million workers would elect coverage at a projected cost to the government of \$64.5 million annually.

### **New Du Pont Booklet Tells Tax Story**

One of the finest booklets ever published on the broad subject of taxes has just been distributed by Du Pont. It points out that present tax laws threaten to slow or cripple the nation's potential for growth, and thus undermine the potential for tax cuts.

Du Pont's "Story of Taxes" emphasizes that the full potential of growth can be attained only if people discipline strictly their demands for government services.

Doctors can obtain a copy of the booklet by writing to the public relations department, E. I. du Pont de Nemours and Company, Wilmington 98, Del.

### **Full-Time V. A. Research**

The V.A.'s program of medical research has, in the past, been on a part-time basis conducted by physicians whose main duty was patient-care. This program will be continued but, in addition, the V.A. has established a new program of full-time researchers, who will spend at least three-fourths of their time on research. The question has been raised in the past whether medical research by V.A. staff members is in competition with or interferes with proper care of the service-connected patient, the primary aim of the V.A. hospital system. With this new medical research program, in which patient-care becomes a minor portion of the researchers' duties, the question becomes even more pertinent.

### **Insured and Unable to Pay?**

In authorizing VA care for veterans with nonservice-connected disabilities (subject to availability of facilities), Section 6 of Public Law No. 2, 73rd Congress, as amended, states that care shall be furnished to any veteran who "is unable to defray the necessary expenses therefor". The law's only standard for determination of the veteran's ability to pay is: "The statement under oath of the applicant on such form as

may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses."

This term "sufficient evidence" (as used in the act) has never been clearly defined by Congress. But "ability to pay", in VA terminology, apparently applies only to the veteran's actual income; the VA consistently treats numerous patients for disabilities which are insured. The VA Annual Report for Fiscal Year 1955 shows receipts of \$3,916,604 from nonfederal sources: "Reimbursements from nonfederal sources consisted of collections for medical care, including hospitalization of patients not legally entitled to such care without reimbursement, e.g., veterans of Allied Nations and emergency cases, and proceeds from hospitalization contracts. The major portion of these reimbursements fell into the latter category."

Individual VA facilities in 1956 reported (House Committee Print No. 30, 1957) that of 229,018 nonservice-connected general and neuropsychiatric cases discharged, 58,054 had insurance and 9,010 had workmen's compensation coverage; in only 1,450 cases had insurance coverage been exhausted before admission. During 1956, these facilities reported, they had **billed** insurance and workmen's compensation agencies for almost \$12 million, and had **collected** almost \$2.5 million.

The VA states that it cannot deny hospitalization when a veteran is eligible and a bed is available; the Administrator can, however, regulate admissions. VA regulations state that the veteran receiving nonservice-connected care "who is believed may be entitled to hospital care or medical or surgical treatment or to reimbursement for all or part of the cost thereof, by reason of statutory, contractual, or other relationships with third parties, including those liable for damages by reason of negligence or other legal wrong, will not be furnished hospital treatment without charge therefor to the extent of the amount for which third parties are or will become liable . . ."



Questions 27 and 27A on the application form (10-P-10) ask the veteran if he is entitled to hospital care "by membership in a union, group plan, insurance policy, etc., or, reimbursement for its cost by reason of a cause of action against any party?" and, if the answer is "Yes", the name and address of the responsible organization.

The admitting officer, if he has reason to believe that the veteran has some such third-party coverage, is instructed to obtain from the veteran at the time of his admission to the hospital a power of attorney and agreement (VA Form 10-2381), assigning the veteran's insurance or workmen's compensation claims for the disability to the VA.

At its Seattle session, November 1956, the House of Delegates of the American Medical Association adopted resolutions condemning this practice as "unlawful," "in direct violation of V.A. Reg. 6047-DI" and "a definite violation of the ethical principles governing the practice of medicine." Resolutions No. 12 (introduced by Dr. Alvia G. Young of Washington) and 23 (introduced by Dr. Malcolm E. Phelps of Oklahoma), both referred to the Council on Medical Service for further action, recommend that the AMA obtain from the states testimony or records of each case violating VA regulations in this fashion and take such action as is deemed necessary to eliminate these practices. (For text of resolutions and reference committee action, see *Journal of the A.M.A.*, January 26, 1957, pp. 273, 276). —FEDERAL MEDICAL SERVICES NEWSLETTER, March-April, 1957.

#### **Favorable Action Expected On VA Doctor Pay Raise**

Despite administration opposition, the House Veterans Affairs Committee in all likelihood will approve a bill by Rep. George Long (D., La.) to increase pay of physicians, dentists and nurses in the Veterans Administration. The bill already has the approval of a subcommittee headed by Mr. Long. The administration is generally opposed to pay raises at this time because of the inflation threat. Veterans Administrator Higley

reported that VA salaries for doctors aren't comparable to those in the armed services, PHS or private practice.

#### **Senate Passes Larger HEW Budget, Sends It Back to House**

When Senate and House conferees get together on the Health, Education and Welfare budget for the fiscal year starting this July 1, they will have to resolve a number of differences in totals for medical programs. The big question is whether the House conferees will agree with any or all of the increases voted for the National Institutes of Health.

Following are the items to be taken up by conferees, listed in this order: Agency, Current Spending, What House Recommends, What Senate Recommends:

Indian Health Activities, \$38,775,000, \$40,000,000, \$42,500,000; Nat. Cancer Institute, \$48,432,000, \$46,902,000, \$58,543,000; Mental Health Activities \$35,197,000, \$35,217,000, \$39,421,000; Nat. Heart Institute \$33,396,000, \$33,436,000, \$38,784,000; Arthritis & Metabolic Diseases, \$15,885,000, \$17,885,000, \$23,548,000; Neurology & Blindness, \$18,650,000, \$18,887,000, \$24,058,000; Water Pollution Control \$50,000,000, \$50,000,00, \$45,00,000.

#### **U.S. Testing New Vaccine for Far East Influenza Strain**

Scientists at the National Institutes of Health now are conducting tests, expected to take at least two more weeks, on a newly-developed vaccine for protection against the Far East influenza, which is expected to make its way into this country shortly. Using virus samples from the Orient, a pharmaceutical house produced the vaccine and turned it over to PHS for studies to determine its potency, effectiveness and safety.

#### **Labor Hits Physicians' Fee System**

Nelson H. Cruikshank, director of the AFL-CIO social security department, who had many a run-in with the A.M.A. when he served as an active member of the board of directors of the Committee for the Nation's Health, shouted out recently against the practice of medicine on a fee-for-service basis.

Writing in the May 18 issue of the AFL-CIO News, Mr. Cruikshank said that physicians' attempts to maintain solo practice on a fee-for-service basis as the only proper relationship with their patients is pure "escapism." The story was based on a speech which he delivered before the Massachusetts Hospital Association.

He was quoted as saying:

"It will not work. Our problem is not as simple as how to maintain solo practice on a fee-for-service basis or even as simple as how to destroy it.

"Our problem is how to develop arrangements under which the personal and social values which were associated with it can be preserved in the practice of 20th century medicine."

In discussing labor's interest in medical care, he said:

"The organizational and collective bargaining process must be extended into a new dimension through negotiations, agreements and arrangements with third parties — the providers of medical services and facilities. Only in this way can the job of translating health and welfare funds into better medical care be effectively accomplished."

#### **New Film in A.M.A. Series Advises Doctors How to Avoid Professional Liability Hazards**

A new film that shows physicians how to avoid the recurrent headache of medical practice today — the professional liability claim — is now available from the American Medical Association film library for county society and other professional bookings.

Titled "The Doctor Defendant", the new film was premiered this week (June 5) in the New York Coliseum before a large audience of physicians attending the 106th annual meeting of the AMA. The 34-minute black-and-white sound film is the second in the "Medicine and the Law" film series produced by the Wm. S. Merrell Company, ethical pharmaceutical laboratories of Cincinnati, Ohio, in cooperation with the A.M.A. and the American Bar Association.

#### **REPORT ON ACTIONS OF THE HOUSE OF DELEGATES**

##### **106th Annual Meeting**

**June 3-7, 1957**

**New York City**

Dr. Gunnar Gundersen of La Crosse, Wis., member of the A.M.A. Board of Trustees since 1948 and chairman for the past two years, was unanimously chosen president-elect for the year ahead. Dr. Gundersen, who also was first chairman of the Joint Commission on Accreditation of Hospitals from 1951 to 1953, will become president of the American Medical Association at the June, 1958, meeting in San Francisco. There he will succeed Dr. David B. Allman of Atlantic City, N. J., who became the 111th president at the Tuesday night inaugural ceremony in the Grand Ballroom of the Waldorf-Astoria Hotel.

The House of Delegates voted the 1957 Distinguished Service Award of the American Medical Association to Dr. Tom Douglas Spies, head of the department of nutrition and metabolism at Northwestern University Medical School, Chicago, and director of the nutrition clinic at Hillman Hospital, Birmingham, Ala., for his outstanding contributions to the science of human nutrition. For only the third time in A.M.A. history, the House also voted a special citation to a layman for outstanding service in advancing the ideals of medicine and contributing to the public welfare. Recipient of this award was Henry Viscardi Jr. of West Hempstead, N. Y., founder and president of Abilities, Inc., which employs only severely disabled persons.

Physician registration at the New York meeting had already reached an all-time high at 5 p.m. Thursday with 18,982 counted and scores of registration cards still unprocessed. The previous high was chalked up at the 1953 New York meeting when the five-day total was 17,958 physicians.

#### **New Principles of Medical Ethics**

The House approved the long-discussed revision of the Principles of Medical Ethics, originally submitted at the 1956 annual meeting in Chicago. The final version, presented by the Council on Consti-



tution and Bylaws and then amended by reference committee and House discussions in New York, now reads as follows:

**"Preamble**

"These principles are intended to aid physicians individually and collectively in maintaining a high level of ethical conduct. They are not laws but standards by which a physician may determine the propriety of his conduct in his relationship with patients, with colleagues, with members of allied professions, and with the public.

**"Section 1.** — The principal objective of the medical profession is to render service to humanity with full respect for the dignity of man. Physicians should merit the confidence of patients entrusted to their care, rendering to each a full measure of service and devotion.

**"Section 2.** — Physicians should strive continually to improve medical knowledge and skill, and should make available to their patients and colleagues the benefits of their professional attainments.

**"Section 3.** — A physician should practice a method of healing founded on a scientific basis; and he should not voluntarily associate professionally with anyone who violates this principle.

**"Section 4.** — The medical profession should safeguard the public and itself against physicians deficient in moral character or professional competence. Physicians should observe all laws, uphold the dignity and honor of the profession and accept its self-imposed disciplines. They should expose, without hesitation, illegal or unethical conduct of fellow members of the profession.

**"Section 5.** — A physician may choose whom he will serve. In an emergency, however, he should render service to the best of his ability. Having undertaken the care of a patient, he may not neglect him; and unless he has been discharged he may discontinue his services only after giving adequate notice. He should not solicit patients.

**"Section 6.** — A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of

his medical judgment and skill or tend to cause a deterioration of the quality of medical care.

**"Section 7.** — In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him, or under his supervision, to his patients. His fee should be commensurate with the services rendered and the patient's ability to pay. He should neither pay nor receive a commission for referral of patients. Drugs, remedies or appliances may be dispensed or supplied by the physician provided it is in the best interests of the patient.

**"Section 8.** — A physician should seek consultation upon request; in doubtful or difficult cases; or whenever it appears that the quality of medical service may be enhanced thereby.

**"Section 9.** — A physician may not reveal the confidences entrusted to him in the course of medical attendance, or the deficiencies he may observe in the character of patients, unless he is required to do so by law or unless it becomes necessary in order to protect the welfare of the individual or of the community.

**"Section 10.** — The honored ideals of the medical profession imply that the responsibilities of the physician extend not only to the individual, but also to society where these responsibilities deserve his interest and participation in activities which have the purpose of improving both the health and well-being of the individual and the community."

**Guides for Relations with UMWA Fund**

In a key action on the basic issue of third-party intervention, as it affects the patient's free choice of physician and the physician's method of remuneration, the House adopted the "Suggested Guides to Relationships Between State and County Medical Societies and the United Mine Workers of America Welfare and Retirement Fund," which were submitted by the A.M.A. Committee on Medical Care for Industrial Workers. In approving the guides, the House also recommended that the Board of Trustees study the feasibility and possibility of setting up similar guides for relations with other third-par-

ty groups such as management and labor union plans.

The statement, which outlines both medical society and UMWA responsibilities, contains these "General Guides":

"1. All persons, including the beneficiaries of a third-party medical program such as the UMWA Fund, should have available to them good medical care and should be free to select their own physicians from among those willing and able to render such service.

"2. Free choice of physician and hospital by the patient should be preserved: A. Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers. b. A physician should accept only such terms or conditions for dispensing his services as will insure his free and complete exercise of independent medical judgment and skill, insure the quality of medical care, and avoid the exploitation of his services for financial profit. c. The medical profession does not concede to a third party such as the UMWA Welfare and Retirement Fund in a medical care program the prerogative of passing judgment on the treatment rendered by physicians, including the necessity of hospitalization, length of stay, and the like.

"3. A fee-for-service method of payment for physicians should be maintained except under unusual circumstances. These unusual circumstances shall be determined to exist only after a conference of the liaison committee and representatives of the Fund.

"4. The qualifications of physicians to be on the hospital staff and membership on the hospital staffs is to be determined solely by local hospital staffs and by local governing boards of hospitals."

### The Medicare Program

The delegates adopted one resolution condemning any payments under the Medicare program "to or on behalf of any resident, fellow, intern or other house officer in similar status who is participating in a training program." Government sanction of such payments, the House declared would give impetus to the improper

corporate practice of medicine by hospitals or other nonmedical bodies.

### Social Security for Doctors

Two resolutions favoring compulsory inclusion of physicians in the federal Social Security system and another one calling for a nationwide referendum of A.M.A. members on the issue were rejected by the House. The delegates reaffirmed their opposition to compulsory coverage of physicians under the Old Age and Survivors Insurance provisions of the Social Security Act. They also recommended a strongly stepped-up informational program of education which will reach every member of the Association, explaining the reasons underlying the position of the House of Delegates on this issue. The House at the same time reaffirmed its support of the Jenkins-Keogh Bills.

### Holifield Committee Gets Conflicting Views on Fallout Dangers

Conflicting testimony on the effects of radiation fallout on man marked the second week of the Joint Atomic Energy subcommittee hearings. Scientists disagreed on whether all fallout is harmful, with greater dangers from larger doses or whether there is a permissible "threshold." But, geneticists concurred that any radiation exposure produces undesirable mutations in humans.

Edward Lewis, a California Institute of Technology biologist, said the incidence of leukemia varies in direct proportion to the dose of radiation received and insisted there can be no threshold for radiation damage. In agreement with this, Ernest C. Pollard, a Yale University biophysicist, suggested a policy of regarding all radiation with suspicion. Lauriston Taylor, chief of the National Bureau of Standards atomic and radiation physics division, insisted on the other hand that there was still "room for motion as far as our uses of radiation is concerned."

Other hearing highlights:

1. Four geneticists — James F. Crow of University of Wisconsin, Bentley Glass of Johns Hopkins University, A. H. Sturtevant of the California Institute of Tech-



nology, and Nobel prize-winner H. J. Muller of University of Indiana — told the Holifield committee that nuclear bomb tests already held have seriously injured hundreds of thousands of lives in future generations.

2. Dr. Muller urged the establishment of a "solid core" of geneticists in a proposed Radiation Health Institute. Such an institute under the National Institutes of Health has been proposed by Senator Neuberger (D., Ore.) and others.

3. Atomic Energy Commissioner Willard Libby testified that bomb testing is a "small risk" that must be measured against the "risk of annihilation . . . if we surrendered the weapons." He said that scientists who have studied the data uniformly agree on the dangers and thresholds of radiation, despite contrary testimony received by the subcommittee.

The hearings, which have been attracting wide attention, are scheduled to wind up the week of June 10. Additional hearings on other aspects of radiation may be called later.

### **Hospitals Named in RLF-Oxygen Actions**

Damage suits have been filed against New York and Chicago hospitals by the parents of two blind premature infants, it is reported. Both suits claim blindness was caused by a dangerous concentration of oxygen administered to the infants' incubators.

Hospitals named are Flower-Fifth Ave., New York, for \$1 million; and Presbyterian-St. Luke's, Chicago, for \$500,000.

The New York infant was born in 1951, three years before the oxygen-RLF link was established. The Chicago hospital denied "careless administration of oxygen" in caring for the infant, born in 1956.

### **AMA Publishes Current Health Insurance Data**

Latest information on voluntary prepayment medical benefit plans is being compiled by the AMA Council on Medical Service. Both the 10th revision of "Voluntary Prepayment Medical Benefit Plans" and the supplementary "Charts and Graphs" will be available about July 1.

The former summarizes information on the benefits, organizational structure, premiums, enrollment, etc. of more than 100 plans designed to provide assistance in financing health care. The latter pamphlet contains composite statistical data showing aggregate claims experiences, administrative costs and enrollment figures as well as comparisons with similar figures published by other sources. For the most part, enrollment figures are as of December 31, 1956, while the statistical data pertain to operations and experience for the 1956 calendar year.

Single copies will be available to physicians and medical societies, without charge, from the Council.

### **Doctors as Diplomats**

American doctors around the world will be the theme of a full-hour color "March of Medicine" television film to be presented this fall by Smith, Kline & French Laboratories with the cooperation of the American Medical Association. The program will be built around the activities of American doctors throughout the world who, in their devotion to their profession, are good-will ambassadors for the United States. Private, missionary, military, foundation and government doctors will be featured.

### **AMA Produces New Film for the Public**

"What doctors do as a group is sometimes more important than what they do individually." These are the words of news commentator John Cameron Swazy in setting the stage in a new AMA film for a series of incidents documenting how organized medicine serves Americans everywhere. Swazy is narrator for this 30-minute color film scheduled for release to medical societies for local showings September 1. The film will be premiered August 28 at AMA's Public Relations Institute in Chicago.

Titled "Whitehall 4-1500," the film tells the story behind this phone number, which puts a caller in touch with America's physicians as a group — the American Medical Association headquarters in Chicago. Dramatic, short sequences show how AMA in action helps save youngsters' lives through poison con-

trol activities, helps reduce highway deaths, helps place physicians in isolated areas, helps make jobs safer for industrial workers and life better for everyone. It reveals the story of AMA efforts to solve many current health problems, such as alcoholism and mental illness.

### VA Tightens Up on Workmen's Compensation Cases

Veterans Administration has tightened up its policy on hospitalization of non-service connected cases where the veteran is covered by workmen's compensation. The action follows conferences between representatives of the American Medical Association and officials of the VA and other federal agencies. The new policy applies only to treatment (on non-service connected basis) "of an occupational injury or disease incurred in or as the result of employment and (where the veterans are) entitled to necessary medical and hospital treatment elsewhere at no expense to themselves by reason of some form of industrial coverage . . ."

Dr. Roy A. Wolford, deputy chief medical director for VA, instructs hospital managers to follow this procedure in such cases: 1. Once it has been established the veteran is covered by workmen's compensation, he will be asked to review his oath of "inability to pay" for private treatment and to agree to his transfer to another (non-VA) hospital when his condition permits. 2. If the veteran still refuses to change, he will be informed that this information will be transmitted to VA headquarters in Washington. (VA can refer such cases to the Justice Department for possible prosecution, although the directive does not say that this will be done.)

## Announcements

University of Arkansas  
School of Nursing  
Medical Center  
Little Rock, Arkansas

Beginning the school year of 1957-58 the Little Rock Junior College as well as

the University of Arkansas at Fayetteville will offer the first two years of the prescribed curriculum to students wishing to work towards a degree of Bachelor of Science in Nursing.

Graduate registered nurses or high school graduates may take their academic work at either of these places.

Persons wishing more detailed information should write to Dean, University of Arkansas School of Nursing, Medical Center, Little Rock, Arkansas.

### Urology Award

The American Urological Association offers an annual award of \$1,000 (first prize of \$500, second prize \$300 and third prize \$200) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in Urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Roosevelt Hotel, New Orleans, Louisiana, April 28-May 1, 1958.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1957."

## Obituary

Dr. Roy Frederick Baskett, 58, Texarkana, died Sunday, May 19, 1957. Born May 23, 1898, in Holton, Kansas, Dr. Baskett was a graduate of the University of Kansas and Washington University of Medicine at St. Louis. He moved to Texarkana in 1929, at which time he became associated with the Smith Clinic. Dr. Baskett was a member of the Bowie-Miller Medical Society, Southern Medical Association, American Medical Association and the Arkansas Medical Society. He was also a member of the Masonic Lodge, a Shriner and a member of the Presbyterian Church. Surviving are his wife; a daughter, Miss Dorothy Ruth Baskett



of Texarkana; one son, Roy F. Baskett, Jr.; his mother, Mrs. W. V. Baskett of Humboldt, Kansas; two sisters, and two brothers.

Dr. Guy Hodges, 69, one of Rogers' earliest physicians, died Saturday, June 8, 1957. Dr. Hodges was born March 18, 1888, in Cane Hill and established an office in Rogers about 45 years ago. He was a veteran of World War I, a former member of the Rogers School Board, the city council and was active for many years in the American Legion Post. Dr. Hodges was a charter member of the Rogers Kiwanis Club and was a member of Immanuel Baptist Church. Survivors include his wife, Mrs. Elibazeth Hodges; two sons, Carl, of Little Rock, and Harold Jene, of Miami Springs, Fla.; a sister and a brother.

Dr. James H. Chesnutt, 77, a practicing physician in Hot Springs since 1908, died Saturday, June 8, 1957, at his home. He has been in ill health for the past two months. Dr. Chesnutt, a native of Hot Springs, was born August 4, 1879. He was a graduate of the University of Virginia and of John Hopkins Medical School, class of 1907. Dr. Chesnutt, a past president of the Garland County Medical Society, was also a past chairman of St. Joseph's hospital staff on which he had served for over 40 years. He was also a member of the Arkansas and American Medical Societies and was a Presbyterian by faith. Dr. Chesnutt leaves his wife, Mrs. Marnette Wood Chesnutt; one son, James W. Chesnutt, Hot Springs; one daughter, Mrs. John F. Trotter of Pine Bluff; and five grandchildren.

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## PERSONALS AND NEWS ITEMS

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Dr. W. I. Watkins who practiced medicine in Alpena and vicinity for over 50 years was honored with an appreciation day, Saturday, June 1. Dr. Watkins, who now lives in Little Rock, was visiting in Alpena.

Coming into partnership with **Dr. Don Loveless** in the new Booneville Clinic is

**Dr. John Doyle Wise**, a native of Bryant, Ark. Dr. Wise has recently been released from active duty in the Air Force where he was Flight Surgeon, stationed at Greenville AFB, Greenville, Miss.

**Dr. M. C. Hawkins, Jr.**, of Searcy has recently designed and put into production a pair of forceps known as the "Hawkins Biopsy Forceps." The new surgical instrument is designed as a cutting instrument, rather than a punch forceps. It is recommended for the taking of serial sections from the circumference of the cervix by the pathologist.

A new, modern clinic has been opened by **Dr. J. K. Jones** of Lepanto.

**Dr. Austin R. Hederick** celebrated his 90th birthday on May 23. Honoring his years of service in Booneville, Saturday, May 25th was proclaimed Dr. Hederick Day. Dr. Hederick was 35 years old when he moved to Booneville in 1902. Prior to the time he came to Booneville he had practiced medicine in Coal Hill and Hatfield, Ark.

The annual Chamber of Commerce dinner held at the Seville Hotel, Harrison, in May, honored **Dr. G. Allen Robinson** for his outstanding work, both civic and professional, in that community.

Four Hot Springs physicians recently moved into their new office building at Woodbine and Hazel. They are **Dr. Joseph Rosenzeig**, pediatrician; **Dr. Haynes Jackson** and **Dr. Robert McCrary**, obstetricians and gynecologists; and **Dr. Walter G. Klugh**, general practitioner.

Moving to Albuquerque, N. M., to join the staff at the Veterans Administration hospital in the surgery department is **Dr. G. K. Patton** of Van Buren. **Dr. Milard C. Edds** of Mulberry will move into the Patton family's former residence in Van Buren and will occupy the Patton office.

A featured speaker at the Fall Conference of the Kansas City Southwest Clinical Society will be **Dr. Willis E. Brown**, Little Rock obstetrician-gynecologist. The meeting will be held in Kansas City October 2nd.

**Dr. Sam G. Jameson** of El Dorado was named recipient of the John H. Morrissey award for his scientific exhibit at the annual scientific assembly of the American Medical Association. Dr. Jameson was given the award for presenting the outstanding scientific exhibit in the section of urology at the meeting. The exhibit, entitled "Pediatric Urology" was comprised of x-rays, enlarged color transparencies and legends depicting the signs, symptoms, finding and treatment of urological diseases.

The 64th annual session of the Arkansas Medical, Dental and Pharmaceutical Association was held recently in the National Baptist Hotel and Bath House at Hot Springs. The following guest clinicians appeared on the program: **Dr. E. Perry Crump**, chairman of Department of Pediatrics, Meharry Medical College, Nashville, Tenn.; **Dr. Richard E. Eberts**, chairman of Department of Medicine, University of Arkansas School of Medicine, Little Rock; **Dr. T. Duel Brown**, urologist, president of Arkansas Medical Society and **Dr. Daniel Autry**, cardiologist, Little Rock.

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## PROCEEDINGS OF SOCIETIES

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Dr. Jerome S. Levy, President of the Pulaski County Medical Society, presided at the June supper meeting held at the Medical Center. A film, "The Subject of Football," was shown featuring the intra-squad Red-White game which ended this year's spring practice at the University of Arkansas. Comments were made by a member of the coaching staff.

Physicians from eight Northeast Arkansas counties met in West Memphis May 30, 1957, for the 109th semi-annual meeting of the First Councilor District Medical Society. Papers read included "Treatment of Hypertensive Disease" by Dr. Josef R. Smith, Little Rock, and "Use of Quinidine in Heart Disease" by Dr. John Conway of Memphis. Dr. Wilbur Hamilton of Little Rock was the moder-

ator for a panel discussion on heart disease. Participants included Dr. Smith, Dr. Conway and Dr. Richard Ebert of Little Rock.

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Dr. J. P. Williams, Brinkley, was elected president of the Third Councilor District of the Arkansas Medical Society at the annual spring meeting held in May in Wynne. Other officers elected were Dr. William C. Hayes of Marianna, first vice-president and Dr. W. L. Walker, also of Brinkley, secretary.

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The Fourth Councilor District of the Arkansas Medical Society met on May 23 at Pine Bluff. Dr. Swan B. Moss of McGehee was elected president and Dr. Lonnie R. Turney, also of McGehee, was elected secretary-treasurer. The group passed a resolution asking the various peace officers of the state to uphold their oaths to uphold the laws of the state with reference to stray livestock. The scientific program consisted of a panel discussion on "The Acute Abdomen." The panel was a group of five doctors from the Univ. Med. Center in Little Rock. They were Dr. J. H. Growden, Dr. David M. Gould, Dr. Mas Hara, Dr. C. W. Shafer and Dr. J. W. Headstream.

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A dinner meeting at Martel's Lakeside Lodge, Magnolia, was held by the Fifth Councilor District Medical Society in May. Dr. Masauki Hara of the department of surgery, University of Arkansas Medical School spoke on the subject, "Common Cardio-Vascular Disorders." Dr. Douglas Heiner of the Department of Pediatrics at the medical school talked on "Congenital Heart Disease". Dr. G. W. Landers of El Dorado is president of the organization.

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At a meeting June 13, 1957, the Pope-Yell County Medical Society voluntarily assessed themselves \$25 per member for the American Medical Education Foundation.

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Contributions from Arkansas during May, American Medical Education Foundation:



Dr. J. H. Burge, Lake Village, \$5.00; Dr. G. R. Farris, Little Rock, \$5.00; Dr. R. M. Logue, Little Rock, \$5.00; Dr. W. G. Reese, Little Rock, \$5.00; Dr. H. H. Rightor, Helena, \$1.00; Dr. D. D. Wallace, Little Rock, \$5.00; Dr. D. M. Williams, Russellville, \$1.00. Total, \$27.00.

### HOSPITAL NURSING REQUIREMENTS UNDER MEDICARE

At its 1957 meeting, the House of Delegates of the Arkansas Medical Society moved to request the Executive Director of the Dependents Medical Care Program to relax the nursing requirements for hospitals under the Medicare Program. Accordingly, Mr. Schaefer wrote the Director of Medicare apprising him of the Society's action and requesting that any hospital licensed under the laws of Arkansas be authorized for payments under the Medicare Plan. The following reply was received from the Department of the Army:

Mr. Paul C. Schaefer  
Executive Secretary  
Arkansas Medical Society  
Kelley Building  
Fort Smith, Arkansas

Dr. Mr. Schaefer:

It is with pleasure that we acknowledge receipt of your letter dated 15 May 1957 concerning the qualifications and eligibility of several small hospitals in Arkansas to participate in the Dependents' Medical Care Program. The interest and concern of the Arkansas Medical Society in seeking to develop an even more expansive utilization of medical facilities for care and treatment to the dependents of members of our uniformed services is indeed appreciated.

However, may we first advise you that the standards under which this Program operates were not established by the Office for Dependents' Medical Care as referred to in your letter. As enacted by the Congress, the Dependents' Medical Care Act charged the Secretary of Defense with consulting with the Secretary of Health, Education and Welfare and then making such reasonable limitations, additions, exclusions, definitions and related provisions as were deemed appro-

priate. In devising the Joint Directive, which implements the Act, the Secretaries of Defense and Health, Education and Welfare solicited the aid of the American Medical Association, the insurance industry, Blue Cross and Blue Shield, and other concerned representatives. In discharging the responsibilities placed upon this office, there is no alternative of administration other than that which has been delegated and in accordance with the provisions of the Act and the Joint Directive.

It is the obligation and intent of this office to administer, judiciously and equitably, the Program under those conditions by which it has been directed to do so. Where any question arises concerning eligibility, authorization or limitation, such questions are resolved on the basis of the provisions and standards prescribed by the Joint Directive.

The realization that certain minimum standards of operation and personnel were necessary to insure proper functioning of the Program in the best interest of the Government and its uniformed services personnel, prompted the definitive classification, with accompanying qualifications, of civilian institutions eligible to participate under the Act.

Understandably, the classification, which serves as a safeguard, will exclude a number of civilian hospitals that provide worthwhile services acceptable to their communities and areas, but which do not meet the specific requirements of the Government. Further, it does preclude the utilization of those other institutions that may not be furnishing acceptable services.

At the present time, under the provisions of Public Law 569 and its implementing Joint Directive, there is no recognized feature, other than treatment on an emergency basis, that will permit the inclusion of civilian medical institutions that do not qualify under the stated definition.

While there have been some isolated instances of questioned hospital eligibility that have come to our attention, the accumulating experience of operation indicates that retention of the current classi-

fication would best serve the objectives of the Program.

Therefore, in view of the reasons mentioned above, relaxation of the present qualification which stipulates, among other requirements, that the hospital "continuously provides 24-hour nursing service by registered graduate nurses", is not contemplated at this time.

We would like to thank you for the copy of the Arkansas Licensing Law, and we regret that a more favorable reply cannot be given. Your continuing interest and cooperation in the Dependents' Medical Care Program is sincerely appreciated and if I may be of service in any way in the future, please communicate with me at your convenience.

(s) Paul I. Robinson  
Major General, M. C.  
Executive Director  
Office for Dependents'  
Medical Care

## Woman's Auxiliary

Women's Auxiliary to the Garland County Medical Society installed new officers at a picnic at the lake home of Mrs. George Fotioo in May. Mrs. William A. Woodcock and Mrs. Cecil W. Parkerson were co-hostesses. Mrs. Lon Reed reported on the state convention and Mrs. Frank Adams conducted the installation. Officers are Mrs. Woodcock, president; Mrs. Louis McFarland, president-elect; Mrs. Charles Yohe, first vice president and Mrs. Robert McCrary, recording secretary.

A joint meeting of the Independence County Medical Society and Auxiliary was held at the Batesville Country Club in May. Following a dinner meeting, the Society and Auxiliary retired to separate rooms for business meetings. Mrs. W. H. Calaway presided over the Auxiliary business meeting in the absence of Mrs. C. A. Churchill, president. Mrs. R. C. Door installed new officers.

## TUBERCULOSIS ABSTRACTS\*

Sponsored by  
The Arkansas Tuberculosis Association

### A CHALLENGE

*By S. Marx White, M.D., Editorial, Journal-Lancet, January, 1957.*

In 1947, the use of streptomycin in the treatment of tuberculosis gave a sudden lift to hopes for the eventual conquest of the disease. Since that time combinations with PAS and isoniazid have provided added effectiveness. Other drugs are being intensively studied in hospitals and sanatoria. This avenue of approach seems certain to improve.

When the surgical removal of the cavi-tated discharging, and therefore infective, portion of the diseased lung became possible, a wave of optimism struck not only the public but the medical profession as well. A feeling arose that we would find an early solution to the problem of eliminating tuberculosis. Such optimism is not justified. The attack is still from the wrong angle.

True, the known case, if properly treated, is now restored to the community as a contributor to the economy and not a distributor of infection. However, the process is still slow and painstaking and full of pitfalls for the unwary. Management if it is to be successful must be unwavering and uninterrupted and requires the utmost skill and training. The cooperation of the patient and the family is necessary. Treatment must be continued indefinitely after recovery or apparent arrest.

The family physician must be alert. He will be importuned to assume the care in the home of the active case. According to Dr. James E. Perkins, Managing Director of the National Tuberculosis Association, the cost of the average case of tuberculosis is about \$15,000 including medical care, compensation, pensions, relief payments, and loss of wages. Few can bear such a burden without assistance. Nearly everyone wants to be cared for at home.

Few people are sufficiently informed to desire treatment in a sanatorium. Unless the physician is alert to the probable course of the disease and firm in his advocacy of sanatorium care, he may yield to entreaties and attempt home treatment with drugs.



● Tuberculosis is still a scourge despite modern drugs and excisional therapy.

Sanatorium care remains the best hope for the patient—and his family. Figures from Minneapolis and Hennepin County are cited to illustrate the extent of the problem.

Soon the patient becomes aware of the expense involved. In time, he may assume that he has sufficiently recovered and abandon the treatment. This has occurred repeatedly. The physician is left helpless, and the patient is often hopeless. Many instances of the situation can be cited by anyone with experience in the field.

In the sanatorium, the entire cost of long-term care is supplied except for the very small percentage of patients who can well afford such expense. In fact, the patient who is charged a token part pays less for sanatorium treatment than for home care. Infinitely more important are skill and specialized medical care by a staff alert by experience to the many pitfalls awaiting the unwary.

In the sanatorium, a rehabilitation program under skilled management is started immediately with education, occupational guidance and placement, which is the *sine qua non* of a successful program of therapy, medical social service, and vocational restoration. Such a program can be furnished only by an institution. Indefinite follow-up is needed to forestall the consequences of relapse.

However, the attack has just begun in spite of the mounting success in removing the patient with a known case of tuberculosis from his community as a source of infection and restoring him as a productive citizen to the community. While the death rate has already fallen, the incidence still remains little below that of ten years ago. Community-wide surveys, incomplete as they are, reveal shocking numbers of individuals in the infective stage who are unrestricted in the community and seeding the germs of the disease in ways which often we cannot as yet trace.

The 149 new active cases found in Minneapolis and Hennepin County in 1954 illustrate this point. Of these cases, 36 per cent were reported from physicians' offices and public clinics, and 22 per cent were hos-

pital inpatients. Mobile-unit surveys and physical examinations with roentgenograms of apparently healthy people located 23 per cent. Follow-up of contacts of active cases accounted for 7 per cent; 2 per cent were found in death reports and were not previously reported. An additional 10 per cent of the cases had been diagnosed elsewhere.

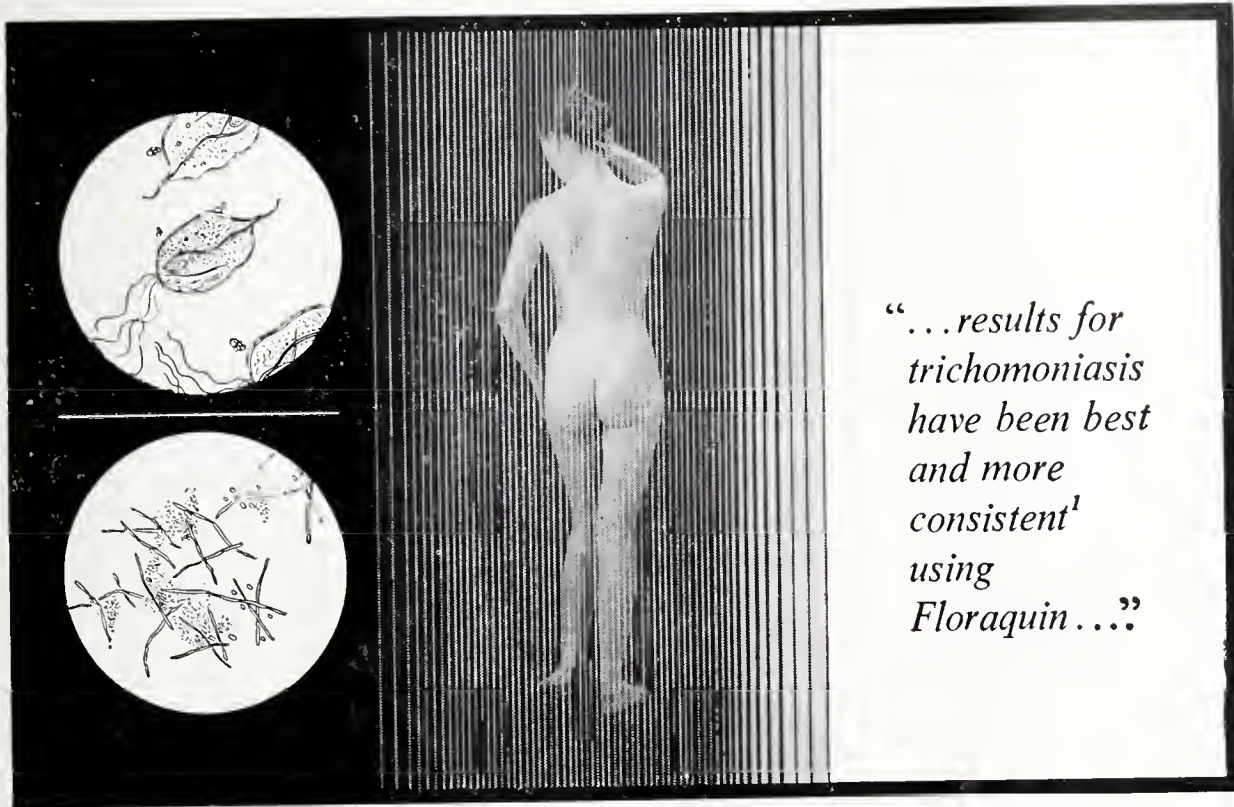
The average attack rate in 1950 to 1954 by age and sex shows that men over 45 years of age comprise the group most likely to develop tuberculosis. Many of them are still supporting a family. The "dangerous age" for women is from 25 to 44, and for every woman who breaks down in this age period, there are almost twice as many men. In the occupational groups, new active case rates in 1954 were highest among the unemployed and next among food handlers and maids.

Routine roentgenographic surveys of all hospital admissions bring to light a significant number of cases. Sanatorium staffs also report a sequence that has not received sufficient attention from the general medical profession. Many cases appearing at first to be a typical, or so-called "virus" pneumonia, recover from the acute attack only to break down much later and prove the original infection to be of tuberculosis origin instead of "virus". The development is usually so insidious and symptomless that only frequent and systematic follow-up can detect this sequence before it becomes a cavitated source of illness and infection.

Conditions in sanatoria throughout the nation quite generally follow a pattern illustrated by the stage of disease on admission recorded in Minnesota's Glen Lake Sanatorium. Approximately 10 per cent only are incipient and usually nonspreaders. Fifty per cent are moderately advanced, and 40 per cent are definitely far advanced. Thus, nearly 90 per cent of those admitted are spreaders of the disease. The local conditions cited illustrate the fact that innumerable sources of infection are present in a community which prides itself on accomplishment in this field.

Tuberculosis exists throughout the known world and has existed since disease in man became known. The causative organism has been known for only a moment in human history. Our success in its sup-

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Pitt<sup>1</sup> recommends vaginal insufflation of Floraquin powder daily for three to five days, followed by acid douches and the daily insertion of Floraquin vaginal tablets throughout one or two menstrual cycles. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

1. Pitt, M. B.: Leukorrhea. Causes and Management, J. M. A. Alabama 25:182 (Feb.) 1956.

2. Parker, R. T.; Jones, C. P., and Thomas, W. L.: Pruritus Vulvae, North Carolina M. J. 16:570 (Dec.) 1955.

SEARLE



pression has just begun. There is an enormous amount of tuberculosis in countries in which health measures are still retarded.

When we turn to our own country, we learn through the National Tuberculosis Association that "if by magic we could eliminate today all the known tuberculosis cases, we would still have about 50,000,000 people in this country harboring live, virulent tubercle bacilli in their bodies." This seems incredible until we remember that, in the vast majority, the disorder is inactive. The impressive fact is the widespread silent character of the infection.

*Here we rest our case. We conclude:*

1. Efforts to find the active spreader of infection need to be intensified. While greater search must be made among the ethnic, occupational, and age groups most heavily infected, all possible sources must be explored.
2. All known cases must be removed from situations in which they can infect others. Isolation provided by the sanatorium is the only assurance against such infection.
3. Treatment now available must be applied under competent management without prospect of interruption and with complete rehabilitation as an added objective. Such treatment means sanatorium care.
4. Research must be intensified. There must be no letdown in the provisions for sanatorium care. Adequate facilities must be provided for communities not so equipped.

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## BOOK REVIEWS

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**Practitioner's Conferences: Volume VI.** Edited by Claude E. Forkner, M.D., Professor of Clinical Medicine, Cornell University Medical College, 1957. p. 378, Illustrated. \$6.75. Appleton-Century Crofts. New York.

This volume, one of a series, records the panel discussions of various diseases, by selected physi-

cians, generally of the New York area. In his preface the editor states that "Patients themselves constitute the best text books". In his discussions many references to case histories are made, and the detailed study of the patient is made the basis of the panel discussion.

The discussions are carefully edited and cleared of extraneous material and present modern day concepts of disease, diagnosis, and therapy. Subjects are various, chosen for the emphasis, of modern therapy or for a timely talk on some medical topic of the day. Each topic chosen constitutes an every-day problem, from the large section on "The early detection of heart disease" to the ever-present "Superficial Fungus diseases", and "Endometriosis".

The volume is easily read and holds the physician's interest. There is a modest number of references and only a few illustrations. The meat of the subject is in the discussions and these discussions are beautifully presented and have the ring of authority.—F.R.

**Expectant Motherhood:** Nicholas J. Eastman, Little, Brown & Company, Boston, 1957. pp. 198. \$1.75.

This book was written for expectant mothers and their husbands. It is written in terms which the average lay individual can understand. It includes practically everything that the normal woman should expect during pregnancy, labor, delivery and her post partum period. Since so many confusing articles concerning maternity problems *Expectant Motherhood* is recommended to pregnant women.—C.R.

**The Doctor as a Witness.** John Evarts Tracy. W. B. Saunders Co., Philadelphia & London. 1957, pp. 221.

This little book, written by a retired professor of law from the University of Michigan, is of great interest and value to any physician who has been, or will be called as a medical witness at a legal proceeding. Very explicit instructions are given for preparation for trial or hearing. There is a list of definite dos and don'ts for a good medical witness. The privileges and obligations of a doctor-witness are clearly stated and interestingly enough, the author makes an emphatic statement that the doctor is morally obligated to serve as a witness in malpractice cases, a point which is not widely accepted in the medical profession. There is a most excellent discussion of how to handle the "bug bear" of medical witnesses-cross examination.

This book is very readable, easily understood and will be a most excellent guide for any physician having to appear in court as a witness for any reason.—S.B.T.



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the heart**



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Would he live? The surgeon mopped his brow and hoped. The year was 1893; the operation, fantastic.

Live? Yes, he would live for many more years, thanks to the skill and courage of Dr. Daniel Hale Williams.

Abandoned as a child, Williams, a Negro, had struggled hard for an education. Now only 37, he had already founded America's first interracial hospital, Provident. And here he had just performed the first of the pioneering operations that would mark him as one of our country's great surgeons.

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# The JOURNAL

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## SYMPOSIUM ON CHEST SURGERY

### Surgery of the Chest Wall

GRIMSLEY GRAHAM, M. D.\*

No attempt is being made in this paper to cover the many diseases that involve the thoracic cage, but to mention some of the more common conditions that are encountered and the present concept of treatment.

#### HARRISON'S GROOVES (1)

A discussion of this condition is being presented first in order to help understand one of the concepts concerning the development of the funnel chest.

These grooves are horizontal mobile concavities created by and synchronous with the retraction of the diaphragmatic attachment at the sixth costal cartilage during inspiration. The action of the diaphragm depends upon the contractions of the lateral leafs, the anterior leafs and the posterior leafs. The anterior portion which attaches at the level of the sixth costal chondral margin is weakest of the group with minimal distance to retract; the muscle group of the posterior leaf which exerts the greatest force of any portion of the diaphragm is forced into stronger contractions to the limit of each muscular segments capability, the weak anterior segment will reach its limit first, thereby allowing the posterior segment to exert unusually strong force on the anterior segment. This will cause the grooves to become more apparent and will gradually pull the costal cartilages dorsally along with the inferior portion of the sternum. It is felt by some that this is the predisposing factor to the

development of the funnel chest and pigeon breast. Harrison's Grooves will be overshadowed with the funnel chest and markedly accentuated with the pigeon breast.

The importance in recognizing these grooves is as follows: (a) it indicates in the newborn that there is tracheobronchial obstruction due to excessive secretions, (b) persistence forewarns the physician that there is a good possibility of future chest deformity, (c) recognition early can be important in reassuring the family that there was no neglect on their part or the part of the physician concerning this condition.

#### PECTUS EXCAVATUM

This is a congenital thoracic deformity consisting of dorsal displacement of the sternum with costochondral concavity from above downward. The depression is usually deepest a little above the xiphosternal junction. While the deformity is usually symmetrical, it may be unilateral in its involvement of the cartilages.

Several theories have been advanced as to the etiology of this condition, one of the more popular having been described above. Brown (2) feels that a neuromuscular imbalance exists, whereby the anterior-posterior fibers are overstimulated. Lester (3) places the blame on the shortening of the anterior tendon of the diaphragm. Regardless of etiology, there is retraction of the lower sternum during inspiration. Paradoxical respiration of the sternum has been observed in patients

\*4316 W. Markham, Little Rock, Ark.



young enough to have very flexible costal cartilages.

As this condition tends to increase with growth, there follows that there will be varying degrees of compression of the heart, great vessels and mediastinum, plus decreased volume of the thoracic cavity.

The first case of surgical intervention for this deformity was reported by Sauerbruch (4) in 1913. His patient was an 18 year old boy that had extreme dyspnea, cardiac arrhythmias and increased feeling of pressure across the thorax with minimal exertion. Sauerbruch resected the fifth to the ninth left costal cartilages and the corresponding left side of the sternum. Three years later, this boy was able to engage in twelve to fourteen hours of work daily without difficulty. There are numerous reports in the literature describing the physiological benefits derived from the correction of this deformity as evidenced by Hoffmeister (5), Alexander (6), Carr (7), Brown (8), Nissen (9) and Sweet (10), Master and Stone (11) studied twenty-five patients with funnel or flat chest which were referred with the presumptive diagnosis of cardiac disease. In (11) sixteen patients the heart was displaced to the left, in ten the pulmonary artery appeared abnormally prominent, and in sixty percent a loud systolic murmur was heard. There were varying electrocardiographic changes. Eight patients had precordial pain, ten dyspnea, six had palpitation, and there was a scattering of other symptoms, such as tachycardia. In my own experience, a white male age 42, had a marked funnel chest with symptoms of marked exertional, dyspnea and cardiac arrhythmias. There had been progressive EKG changes over the past year. Corrective surgery was done over seven months ago. He has an exercise tolerance commensurate with his age and is able to carry out normal activity without any dyspnea or pain. Watchel (12) and his group recently published their series of fifty cases in which they stated that moderate to severe funnel chest, although compatible with normal activity and longevity, cannot be considered a benign musculoskeletal deformity. "This is a condition wherein marked anatomic alterations of the thorax and

secondarily of its viscera may result in profound disturbances of cardiorespiratory physiology."

The operation for this condition has been fairly well standardized. One fact that is appropriate at this point; the simple procedure of cutting the so-called retrosternal ligament in young infants had not produced good results and in some cases have actually increased the deformity. This ligament is a passive, fibrous structure, incapable by themselves of moving or affecting the anterior chest wall.

The indications for surgery in this deformity are:

- (a) Marked deformity in a child over the age of three years.
- (b) Progressive deformity in children and young adults.
- (c) Symptomatic adults.

#### CHEST WALL TUMORS

The most common tumors involving the chest wall are metastatic lesions which will not be discussed. Primary chest wall tumors are relatively rare, difficult to diagnose and all require surgical intervention either as definitive treatment or for diagnostic purposes. The most common benign tumor involving the bony thorax is the chondroma (13) which is usually found at the costochondral junction. Blades (14) classifies benign tumors of the chest wall as follows: lipoma, neurofibroma, fibrous dysplasia, osteochondromas, fibroma, perineurial fibroma and ganglioneuroma. He classifies the malignant tumors as: fibrosarcoma, malignant melanoma, reticulum sarcoma, Ewings tumor, hemangioendothelioma and Hodgkins. If lipomas are excluded, approximately 45 percent of the benign tumors of the chest wall are primary nerve tumors.

The most important consideration of these tumors is their complete unpredictability. What may appear to be benign histologically, may well be a malignant tumor. Small tumors of the chondral area may lie dormant for years widespread metastasis. Harrington (15) described three cases in 1927 which demonstrate this very well. There was a previous history of injury with a palpable

nodule being present for forty, twelve and six years respectively. All had sudden increase in size, and at the time of surgery were grossly malignant. This illustrates the pitfalls of "watchful waiting", to most any tumor, but especially when the area involved is the chest wall.

The most common symptom is pain and the most common sign is a mass. Pain may be present without a demonstrable mass and the reverse may also be true. One should not hesitate in obtaining x-rays when there is persistent pain in a localized area in order to rule out a tumor which may have an intrathoracic projection with little or no outward extension. Planigrams have been most helpful in localizing these tumors, especially in delineating them from the intrathoracic structures.

Early, complete removal is the only treatment of choice. The frequency with which benign tumors become malignant is the prime factor in adopting this attitude, furthermore, many benign tumors can attain a tremendous size and the surgical excision becomes more hazardous. The procedure of choice includes the removal of the entire involved rib, periosteum, the underlying pleural, intercostal muscles, adjacent chest wall and any involved portion of the diaphragm. Large segments of the thoracic cage can be removed with minimal functional disturbance and deformity. If there is intrathoracic projection of the tumor, the pleural space should be entered two interspaces above or below to determine the amount of tissue to be removed. It is sometimes necessary to remove a lobe of the lung if there is direct extension to this organ.

The only tumors that do not require this extensive surgery are Ewings and those of lymphatic origin. Treatment with x-ray therapy is much more satisfactory, although the end results are very poor, as would be expected in these tumors.

One word of caution in dealing with these tumors; some of the benign tumors, such as lipomas will have a small external component and a very large intrathoracic projection. One should be set up to extend the limits of this surgery as indicated at all times.

#### TRAUMA

This is probably the most frequently encountered condition involving the chest wall, and will probably continue to increase. The time will come when safety will become the paramount factor in the construction of the automobile rather than design and horsepower.

A chest x-ray is paramount in treating chest wall injuries. In some cases routine erect chest film can be obtained, however a poor portable film is better than none at all. The usual chest injury involves multiple rib fractures with minimal to moderate damage of the underlying lung. The overall concept in treating chest injuries is the avoidance of major surgery if at all possible. Naturally, rupture of the bronchus, lacerations of large vessels, rupture of the diaphragm will require major intervention.

The most important consideration in any accident case is to insure an adequate airway. The next consideration should be control of hemorrhage, shock and pain. The usual chest injury involves multiple rib fractures with minimal to moderate damage of the underlying pleura and lung. This increases the secretions in the lung which tend to produce obstruction of various segments of the lung. The patient is unable to cough forcefully enough to clear this, due to his pain. It is a relatively simple procedure to aspirate the tracheobronchial tree with a soft rubber catheter placed through one of the nares. If this does not suffice, then a tracheostomy should be done. This acts not only as a convenient method with which to keep the tracheobronchial free of secretions, but decreases the dead air space from 125 cc. to 25 cc. This operative procedure will also control most "flail" chests. The time to do a tracheostomy is when one first thinks that it is indicated; procrastination at this time is dangerous and valuable time may be lost.

Once an adequate airway is established, the definitive care of other injuries can be done at a more leisurely pace. Pneumothorax and hemothorax are common complications of the rib fractures and must be treated initially. If more than two cm. rim of air is present in the lung, then underwater drainage should be



done to insure complete re-expansion of the lung. This can be done with the insertion of a No. 20 Foley bag catheter through a small stab incision in the second or third anterior interspace. Hemothorax will usually require aspiration with a large gauge needle. It is imperative that any large amount of blood in the thorax be evacuated in order to prevent the formation of fibrous pleural "peel", which would necessitate a decortication at a later date. The use of some of the enzymatic drugs may be required in order to remove large amounts of blood in the thorax.

The treatment of the rib fracture actually requires very little definitive treatment other than rest. Tight bandages placed about the chest will limit respiration and prevent adequate clearing of the secretions with coughing. Intercostal nerve blocks are effective in the control of pain and usually one or two blocks will suffice.

When a flail chest is not corrected by tracheostomy, then the placing of a Steinman pin anterior to the chest wall and deep to the pectoralis major muscles with traction applied is a simple manner of correcting this condition.

#### Bibliography

1. Brodtkin, H. A., *Harrisons Grooves*, J.A.M.A. 161: 1555, 1956.
2. Brown, A. L. and Cook, O.: *Cardio-Respiratory Studies in Pre and Post Operative Funnel Chest (Pectus Excavatum)*, *Dis. Chest* 20: 378, 1951.
3. Lester, C. W.: *Funnel Chest: Its Cause, Effects and Treatment*, *J. Pediat.* 37: 224, 1950.
4. Sauerbruch, E. F.: *Die Chirurgie De Brustorgane*, ed. 3, Berlin, 1928, G. Springer, pp. 735-741.
5. Hoffmeister, W.: *Operation der angelbarene Trichterbrust*, *Beitr. z. klin. Chir.* 141: 214, 1927.
6. Alexander, J.: *Traumatic Pectus Excavatum*, *Ann. Surg.* 93: 489, 1931.
7. Carr, James G.: *The Cardiac Complications of Trichterbrust*, *Ann. Int. Med.* 6: 885-894, 1932-33.
8. Brown, A. L.: *Pectus Excavatum*, *J. Thoracic Surg.* 8: 469, 1938.
9. Nissen, R.: *Osteoplastic Procedure for Correction of Funnel Chest*, *Am. J. Surg.* 64: 169, 1944.
10. Sweet, R. H.: *Pectus Excavatum*, *Ann. Surg.* 119: 1944.
11. Master, A. M. and Stone, J.: *The Heart in Funnel Shaped and Flat Chests*, *Am. J. M. Sc.* 217: 392, 1949.
12. Watchel, Fred W., Ravitche, Mark M. and Grisham, Arthur: *The Relation of Pectus Excavatum to Heart Disease*, *The Am. Heart J.* 52: 121, 1956.
13. O'Neal, L. W. and Ackerman, L. V.: *Cartilaginous Tumors of Ribs and Sternum*, *J. Thoracic Surg.* 21: 71, 1951.
14. Blades, B. and Paul, J. S.: *Chest Wall Tumors*: *Annals of Surg.* 131: 976, 1950.
15. Harrington, S. W.: *Personal Communication*.

# "Closed" Heart Surgery

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## INTRODUCTION

At the present time surgery of the heart is still a young and not completely explored field. As time goes on, more new operative procedures are being introduced, and more and more of the earlier cardiac surgical procedures are being discarded. Concepts are ever changing, and at the present time the thinking on what constitutes an acceptable surgical procedure upon the heart, what indications should be used for surgery, when surgery should be done, etc. is not completely crystallized. Today much is being written concerning the use of various techniques and procedures designed to render a dry field for intra-cardiac direct vision surgery. The principal methods by which this "open" heart surgery is accomplished are: (1) the use of a pump-oxygenator to bypass completely the heart and lungs; (2) the use of a pump for the movement of blood combined with the use of either the patient's lung, an isolated animal lung, or the intact cardio-respiratory system of a second patient (cross-circulation); (3) the use of a pump combined with a supply of banked oxygenated blood (oxygenated blood reservoir system); (4) the use of total body hypothermia (induced either by surface cooling or by central blood cooling); (5) the use of total body hypothermia combined with limited perfusion with oxygenated blood (low rate total body perfusion, or coronary artery perfusion alone from an oxygenated blood reservoir). All of these techniques have been used successfully repeatedly both in the experimental laboratory and clinically for "open" heart surgery. At the present time there are still many disadvantages and drawbacks to these various procedures designed for dry field cardiac surgery. Excessive hemolysis of the blood, destruction of formed elements of the blood, hemorrhagic tendencies, etc. are but a few of the problems yet to be completely overcome with these various perfusion techniques as currently used. Ventricular irritability and the occasional occurrence

of serious and often irreversible ventricular arrhythmias, such as ventricular fibrillation, constitutes at the present time the most serious drawback to the use of general hypothermia. Other disadvantages of hypothermia are a much more definite limitation of time in the open heart than with the perfusion techniques, and occasional severe burns of the patient's skin associated with various cooling and warming techniques. Fortunately, these techniques are not required for the majority of cardiac surgical procedures as currently done. The closure of an interventricular septal defect and the complete restoration to anatomical normalcy of tetralogy of Fallot constitute two of the main indications for the use of an "open" type of cardiac procedure. The closure of interauricular septal defects is accomplished extremely satisfactorily with an "open" technique; however, it may be performed by any one of several "closed" techniques. Although satisfactory "closed" techniques are frequently used for the correction of pulmonary valvular stenosis and aortic valvular stenosis, in the author's opinion, these are best treated with an "open" technique using general body hypothermia as advocated by Swan.

The above statements have been made to preface the following remarks on "closed" cardiac surgery. It is the author's hope to, at some later date, submit a similar article describing the various "open" techniques.

Satisfactory "closed" techniques have been accomplished for diseases of the pericardium, the management of trauma to the heart, the closure of inter-auricular septal defects, the correction of stenosis of the mitral, tricuspid, and pulmonary valves, the interruption of a patent ductus arteriosus, the correction of coarctation of the aorta, and the improvement of vascularity of the myocardium. Also, the construction of an artificial opening between the systemic arterial system and the pulmonary arterial system (either by a Blalock or a Pott's procedure) has been used

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many times for the quite satisfactory relief of most of the symptomatology of tetralogy of Fallot, or other congenital cardiac anomalies manifest by pulmonary stenosis combined with an intra-cardiac right to left shunt. Less satisfactory "closed" procedures have been performed for the relief of aortic stenosis and for the correction of mitral insufficiency. A number of "closed" attempts have been made to close inter-ventricular septal defects without particularly startling results. This list, of course, includes both congenital and acquired cardiac defects.

#### DISEASES OF THE PERICARDIUM

The disease of the pericardium most frequently treated surgically are pericardial effusion and chronic pericarditis. Also, the surgeon is occasionally called upon to perform a pericardial biopsy for diagnostic purposes. Of course, there are many types of pericardial effusion; sanguinous, sero-sanguinous, purulent, etc. Pericardiocentesis is a simple and easily accomplished surgical maneuver done with local anesthesia. Pericardostomy is very rarely at the present time indicated, but an occasional case of purulent pericarditis is still encountered and is treated by this operation. The management of chronic constrictive pericarditis is a surgical procedure which dates back to the suggestion of Weill in 1895. Various surgical approaches have been suggested and performed by different investigators, but at the present time the technique is reasonably well standardized. The classical case presents the Beck's triad: (1) the small, quiet heart; (2) the high venous pressure; and (3) ascites. To these also might be added the failure to observe pulsations of normal amplitude of the cardiac margin on fluoroscopy, and the occasional demonstration of calcification of the pericardium. The modern procedure for constrictive pericarditis is usually performed through either a midline sternum splitting incision or a bilateral anterior thoracotomy with transection of the sternum. It consists of a rather radical removal of the constricting pericardium, including more or less complete resection of the pericardium overlying the superior and inferior vena cava. Good results can be expected unless the case has been allowed to progress to far advanced cardiac

failure, in which event postoperative irreversible cardiac dilatation and failure will result.

#### RELIEF OF VALVULAR STENOSIS

The most commonly performed operation for valvular stenosis is that of mitral commissurotomy. This procedure, at the present time, is standardized well enough and carries a low enough mortality risk (5 percent or less) so that it is the consensus of most cardiac surgeons that symptomatic mitral stenosis is an indication for surgical intervention. The majority of these operations are performed on patients in functional categories Class 2 and Class 3. Most cardiologists feel that operation should be deferred in Class 1 patients because the mildness of the disease does not warrant the risk of operation. On the other hand, Class 4 patients, although quite occasionally operated on, do extremely poorly; and obviously the highest mortality rate and the poorest surgical results are obtained in this group. Since the surgical correction of mitral insufficiency is much less satisfactory than is mitral commissurotomy for mitral stenosis, accurate preoperative diagnosis is of paramount importance. In addition to confusion of mitral stenosis with mitral insufficiency, the occurrence of multiple valvular lesions leads to a higher mortality and a poor postoperative result in mitral valve surgery. Therefore, the patient who manifests the typical physical findings, classical radiographic and electrocardiographic findings of mitral stenosis can be expected to get the optimum postoperative result. Since both mitral insufficiency and disease of the aortic valve (whether it be stenosis or insufficiency) lead to left ventricular enlargement, the finding of left ventricular enlargement should be a red flag in the preoperative evaluation of a patient for mitral commissurotomy. The occurrence of a large left auricle indenting the barium filled esophagus is typical of either mitral stenosis or mitral insufficiency and therefore, is of no differential diagnostic importance. Although many cases are operated upon without the classical findings and are very frequently found to have mitral stenosis of a dynamically significant degree, the cardiac surgeon is much more comfortable if his patient has:

(1) an apical diastolic murmur or a pre-systolic murmur; (2) a large pulmonary conus and increased pulmonary vascularity associated with right ventricular prominence, and enlargement of the left auricle as identified on fluoroscopy or x-ray; and (3) right axis deviation or right heart strain pattern on the electrocardiogram. Auricular fibrillation, which of course is seen frequently in both mitral stenosis and mitral insufficiency, does not necessarily imply a poor postoperative result. However, there is a growing feeling that prophylactic dicumoralization of these patients for six to twelve weeks preoperatively is a useful procedure.

Pulmonary valvular stenosis, a congenital malformation, occasionally seen in association with septal defects, and frequently as an isolated lesion, is quite satisfactorily treated by a "closed" technique, using the Brock Valvulotome and dilator or the Pott's modification of the Brock instruments. This operation is quite easily accomplished without interruption of the circulation by passing the Valvulotome through a "purse-stringed" opening in the out-flow tract of the right ventricle blindly through the pulmonary valve. Although these patients are usually improved symptomatically by this procedure, there is not always a satisfactory reduction in the pressure gradient across the valve as measured by cardiac catheterization postoperatively. At the present time Swan and Grow along with several others are attacking this problem by an "open" operation. This is very conveniently and satisfactorily accomplished using general body hypothermia with interruption of the circulation for periods of time varying from three to eight or nine minutes, during which time an incision is made either in the pulmonary artery just distal to the valve or directly over the valve ring itself and under direct vision the valve is incised throughout its entire diameter to more completely relieve the stenotic process. By this method a much more satisfactory reduction in the pressure gradient across this valve has been obtained.

Stenosis of the aortic valve (whether associated with mitral valvular disease or not) is treated by one of two "closed"

techniques much less satisfactorily than is stenosis of either the mitral or pulmonary valves. The "closed" methods of approaching aortic stenosis are by: (1) the trans-aortic approach; (2) the trans-ventricular technique. The trans-aortic method is applied through a bilateral anterior thoracotomy with transection of the sternum. This allows surgical exposure of the anterior aorta just a short distance above the aortic valve. Without interruption of the circulation of blood passing through the aorta, a small segment of the anterior aortic wall is grasped with a spoon shaped occluding clamp, and this section of aortic wall which is isolated from the main portion of the aorta through which blood is flowing is then incised for a short distance. A "sleeve" of either a free pericardial graft, a section of nylon fabric, or an arterial homograft is then sutured to this opening. The distal end of the sleeve is then encircled with a purse-string suture. The operator's index finger is then passed into the sleeve, the suture is tightened about the finger to prevent loss of blood, and the clamp is removed from the aortic wall, thus the finger is allowed to then enter the aorta without interruption of the circulation. The finger is then passed down over the aortic valve in much the same manner as exploration of the mitral valve through the left auricular appendage is accomplished. An attempt is made at fracturing of the frequently calcified aortic valve with the finger. If satisfactory dilatation of the valve cannot be accomplished with the finger alone, then one of the several dilating instruments available for this situation is introduced into a second opening in the sleeve, and using guidance of the palpating finger, more forceful dilatation of the valve is accomplished. Next the finger and/or instrument is removed, and the partial occluding clamp placed again on the anterior wall of the aorta, and the sleeve is removed, and the aortic incision approximated by the conventional aortic suture utilizing everting sutures of non-absorbable silk. The alternate method of surgical treatment of aortic stenosis is by a trans-ventricular route. Using this method either a posteriolateral left thoracotomy incision or, if preferred, a long



anteriolateral thoracotomy incision is used. After the pericardium has been opened widely enough to visualize the apex of the heart, a site is selected, usually near the apex of the left ventricle, which appears relatively avascular, and after a satisfactory purse-string suture has been applied to this area, a small stab wound is made through the ventricular myocardium, and the dilating instrument is passed through the ventricular wall, traversing the ventricular cavity and entering the aortic valve for the purpose of forcefully dilating the valve. Forceful dilatation of the valve is accomplished by expanding the blades of the instrument. The instrument is withdrawn, and the stab wound of the ventricular wall is handled as any stab wound of the ventricle. However, one of the great disadvantages of this technique is difficulty with handling this stab wound of the ventricle inasmuch as usually a soft friable dilated left ventricle is encountered in aortic stenosis and does not tolerate suturing as well as a normal ventricle. Both of these methods are reasonably inaccurate methods, with risk of incomplete separation of the commissures, the production of severe aortic insufficiency, and the possibility of surgical accidents with rapid and exsanguinating loss of blood from the high pressure left side of the heart. Also, the possibility (as in mitral surgery) of dislodgment of a calcium plaque from the valve into the aortic circulation and possibly into the carotid and to the brain must always be considered. However, in practice, this has not been a major hazard. Obviously aortic stenosis is a disease which would best be treated by an "open" heart procedure with complete resection of the grossly deformed and thickened valve and the placement of a satisfactory prosthetic valve in a position proximal to the orifices of the coronary arteries. Unfortunately, at this time an operation of this type is not available. However, in the author's opinion, at the present time an "open" approach using general body hypothermia (with interruption of the circulation for a few minutes), utilizing a small linear incision in the anterior wall of the aorta just above the valve, and using direct vision, accurately cutting the commissures with

a pair of heavy scissors as advocated by Swan is the most reasonable surgical approach to this problem. Contrary to previous thoughts, air embolization to the coronary artery system does not occur during this operation of "open" aortic commissurotomy.

Stenosis of the tricuspid valve is rare. However, it does occur, occasionally as a result of rheumatic fever, and in association with mitral valvular disease. Its presence must be suspected in any atypical case of mitral stenosis. As has been pointed out by Blount, and other investigators, the diagnosis is quite easily confirmed by cardiac catheterization. Tricuspid stenosis has been treated in much the same manner as mitral stenosis by either finger fracture or guillotine commissurotomy (or a combination of both), using the auricular appendage as a diverticulum through which to pass the finger and/or instrument for manipulation of the valve without interruption of circulation. This procedure is almost always performed in conjunction with mitral commissurotomy, and two surgical approaches are available to the surgeon to accomplish these operations. The author's preference is the use of a bilateral anterior thoracotomy with transection of the sternum as advocated by Swan, performing the commissurotomies through the auricular appendage on each side. Bailey, however, suggests and uses a completely right sided approach for mitral commissurotomy, passing the finger and/or instrument through the dissected inter-atrial groove into the left auricle to fracture the mitral valve. Following the mitral commissurotomy, he then is able to attack the tricuspid valve through the right auricular appendage.

#### TREATMENT OF REGURGITATION OF THE CARDIAC VALVES

Regurgitation of the cardiac valves is treated much less satisfactory surgically than is stenosis of the valves. Numerous attempts have been made in the experimental laboratory to obturate the various valve orifices during the phase of the cardiac cycle when the valve would normally be closed. These techniques for attempting to treat valvular regurgitation have included the use of a spring valve

made of watch spring alloy, the use of a "bottle-shaped" baffle of plastic material, etc. However, the two techniques for the treatment of valvular regurgitation which have been used clinically with some degree of success are the "purse-stringing" technique for management of mitral insufficiency as advocated by Glover and other surgeons, and the use of the ball valve prosthesis of Hufnagel for the management of aortic insufficiency. The technique of purse-stringing the mitral annulus is accomplished using a heavy silk or nylon suture, passing it deep to the coronary artery around the area of the mitral ring and traversing the border of the right auricle. With the operator's index finger in the valve ring in the same manner as for a mitral valve commissurotomy, the purse-string suture is tightened down until satisfactory improvement of the regurgitant jet is accomplished. This procedure is very satisfactory in certain cases; however, other patients having severely distorted mitral valves as a result of the scarring, calcification, etc. are not benefited as completely as would be hoped.

The ball valve prosthesis as designed and used by Hufnagel for aortic insufficiency is a very ingeniously designed lucite prosthesis which contains a floating lucite ball which falls against a watertight collar during diastole and thrusts forward against prongs which allow the blood to pass around the ball during systole. This valve is inserted in the proximal descending aorta just distal to the left sub-clavian artery. This, of course, removes a great share of the load from the over-worked left ventricle in aortic insufficiency. However, obviously the most satisfactory solution to aortic insufficiency will be a valve situated proximal to the ostia of the coronary arteries so that normal hydrodynamics is completely restored and adequate coronary artery perfusion results. At present a satisfactory sub-coronary aortic valve is not in use, and of course will require the use of "open" heart surgery for its placement.

## CLOSURE OF SEPTAL DEFECTS

Defects of the atrial septum are very frequently handled quite satisfactorily by one of the "closed" techniques. One of

the very excellent methods of closure of simple inter-atrial septal defects by the "closed" technique is that of Sondergaard. This consists of a right sided thoracic approach with exposure of the right side of the heart and dissection of the septum between the two atria on the right side between the pulmonary veins and the vena cava. A heavy suture is then passed from the root of the aorta coursing between the aortic wall and the atrial wall down to the top of the intra-ventricular septum, then posteriorly to circumscribe the atrial septum. The suture is then tied down (usually over a piece of free muscle graft) in the interatrial groove so as to circumscribe the atrial defect. Another very useful maneuver for closure of atrial septal defects by a "closed" technique is that of the atrioseptopexy advocated by Bailey. This technique consists of simply placing the finger through a "purse-stringed" opening of the right auricular appendage and palpating the atrial defect, and with the intra-cardiac finger invaginating the atrial tip suturing the wall of the atrial appendage to the edge of the defect. The finger is then removed from the "purse-stringed" opening, and the opening is closed in the usual manner. Another technique which has enjoyed considerable popularity is the technique of the atrial "well" as described by Gross. A latex funnel shaped "well" is sutured to an incision in the wall of the right auricle made over an occluding clamp. The clamp is then removed, and the blood is allowed to fill the "well." This, of course, does not interrupt circulation, and the pressure in the auricle is not high enough to overflow the "well." Next, by palpation, the surgeon works through the "well," suturing the defect beneath the blood in the auricle, guiding his sutures by the palpating finger. None of these techniques have been found to be particularly useful in the management of persistent ostium primum. In this situation there is an absence of the atrial tissue in the region of the common conduction bundle which may lie right on top of the interventricular septum. The poorest results, using any of the "open" cardiac surgery techniques for atrial septal defects, have also been obtained in this group of cases. In any type of atrial sep-



tal defect surgery, it would appear that a direct approach would be more desirable for obvious reasons. Certainly, in the future more of these defects will be closed by "open" techniques. The use of total body hypothermia with circulatory occlusion and a direct approach to the interauricular septum, closing it by suture under direct vision, is a beautiful technique, is accomplished rapidly, and results in a very low mortality.

Defects of the inter-ventricular septum have been approached both experimentally and clinically with various techniques of a "closed" nature. However, results have been almost uniformly discouraging. One "closed" technique consists of the passage of a plug of tissue such as rolled pericardium, etc. through an opening in the anterior ventricular wall through the defect. Another technique consists of passage of heavy sutures through the ventricular septum in an attempt to approximate the defect by decreasing the anteroposterior diameter of the septum. At the present time "closed" techniques appear relatively useless in the management of this anomaly. The use of the pump-oxygenator for total body perfusion has given the best results in surgery of the inter-ventricular septum. Total body hypothermia with circulatory occlusion at the present time is not a satisfactory method of ventricular septal surgery because of the likelihood of ventricular fibrillation. However, total body hypothermia plus perfusion of the coronary artery system with a low rate flow of oxygenated blood has been used successfully repeatedly for the management of ventricular septal defects.

#### SURGERY OF THE GREAT VESSELS

This subject has been included inasmuch as these procedures are usually done for the effect that they have upon the heart, etc. The interruption of a patent ductus arteriosus, the resection of a coarctation of the aorta, and the construction of either a Blaylock or Pott's anastomosis are all quite readily accomplished without the use of any sort of pump-oxygenator, body hypothermia, etc.

Surgical interruption of the patent ductus arteriosus has become a relatively common procedure since Strieder under-

took the first clinical ligation of a ductus arteriosus in 1937. The following year, in 1938, Gross ligated a ductus arteriosus, and his was the first patient to survive the operation. Since that time thousands of patients have been operated on, and the overall mortality for this procedure done for uncomplicated patent ductus arteriosus should be less than 2½ per cent. The choice of technique, whether triple ligation or division with oversewing of the divided ends, remains a decision for each surgeon to make; either technique should give good results if properly done. It is not the purpose of this paper to discuss the symptomatology or the treatment of the atypical ductus arteriosus or the reversed flow ductus, etc. However, it has become a fairly general consensus that a child who is found beyond the age of two years to have the classical machinery murmur to the left of the sternum in the second or third interspace, increased pulmonary vascularity, the presence of a palpable thrill, a long pulse pressure, etc. should be operated on, and the ductus interrupted unless there is evidence that the ductus is serving a compensatory function as in the tetralogy of Fallot, tricuspid atresia, certain types of transposition, etc. Of course, bacterial endocarditis, if present when the patient is first seen, should be treated intensively with antibiotic therapy before interruption of the ductus is performed.

Coarctation of the aorta manifest by upper extremity hypertension associated with absent or faint pulsations in the femoral arteries, etc. is readily treated in most instances by cross clamping the aorta above and below the coarctation, resection of the coarctation, and reanastomosis of the aorta. Also, in this anomaly, various atypical anatomical situations are occasionally encountered, and it is not the purpose of this paper to discuss those cases with involvement of the sub-clavian artery, those coarctations occurring above the left sub-clavian, etc. In the child it is particularly unusual to find a coarctation which requires the use of some device to bridge the defect; ordinarily end to end reapproximation of the aorta after the coarctation is resected will be possible. It would appear that because of the uncertain future of arterial homografts and/

or fabric prostheses, the use of these to bridge an aortic defect in the child is highly undesirable.

The construction of an anastomosis between the end of the sub-clavian artery and the end or the side of the pulmonary artery (Blaylock procedure) and the anastomosis of the side of the aorta to the side of the pulmonary artery (Pott's procedure) is an extremely useful procedure (which can be accomplished without the help of general body hypothermia, the pump-oxygenator, etc.) for the management of tetralogy of Fallot and other cyanotic heart diseases characterized by pulmonary avascularity and intra-cardiac right to left shunt. The trend toward anatomical reconstruction of the heart in tetralogy of Fallot is gaining impetus. This, of course, requires circulatory occlusion and is ordinarily done with the use of a pump-oxygenator. As more extra-corporal circulation procedures are done, and the risk of complications becomes less, this will undoubtedly replace the Blaylock and Pott's procedures in the management of most cases of cyanotic heart disease.

#### REVASCULARIZATION OF THE MYOCARDIUM

Many different techniques and procedures have been advocated and performed to increase the blood supply to the myocardium. Names which are prominent in the development of this field are numerous, to list only a few; Beck, O'Shaughnessy, Morison, Wilkie, Strieder, Murray, Carter, Thompson, and many others. Procedures have varied from pedicle grafts of omentum to the myocardial surface, grafts of pectoral muscle to the myocardium, to attempts to graft the lingula of the left lung to the epicardium. Also, various types of irritants have been introduced into the pericardial sac (varying from horse serum, talcum powder, to powdered asbestos, etc.) in an attempt to produce vascular adhesions between the epicardium and pericardium. Also, ligation of the coronary sinus coupled with free vein graft anastomosis of the thoracic aorta to the coronary sinus in an attempt to perfuse the myocardium in a retrograde fashion has been done both experimentally and clinically. Incomplete ligation of the coronary sinus has also

been done for the same purpose. This has usually been combined with the introduction of talcum powder or powdered asbestos into the pericardial sac. A more recent innovation into this field is the ligation of the internal mammary arteries in the second interspace bilaterally.

Almost all of these procedures have been productive of both startlingly good results and dismal failures. Since angina is subjective and is most likely related to factors other than merely myocardial ischemia, these operations are extremely difficult to evaluate.

One of the simplest and safest of the so called "surface revascularization" procedures is the "cardiopericardiopexy" of Thompson. It is very easily and quickly accomplished. A small incision is made over the left fifth costal cartilage just lateral to the sternum. A small portion of the cartilage is resected, and after the pericardial fat is pushed aside, the pericardium can be opened through a one inch incision, and 4 grams of powdered asbestos or sterile talcum powder is introduced into the pericardial sac. The pericardium is then closed rather snugly with a few sutures, and the wound is closed without drainage. 80-85 per cent of patients subjected to this procedure derive benefit therefrom.

The recently introduced bilateral ligation of the internal mammary arteries is also accomplished very simply and very easily, and although patients operated on by this technique have not been followed nearly as long as with the cardiopericardiopexy described above, results appear to be about as good. Some thought has been given to the combination of these two procedures. Certainly the performance of both of these procedures could be accomplished on a patient without subjecting him to undue surgical trauma.

Inasmuch as at the present time there is no medical management which has proved uniformly successful in the prevention or cure of atherosclerosis, it would appear that one or the other of these operations is occasionally indicated for a patient suffering from coronary artery disease. Procedures designed to revascularize the myocardium are indicated in those patients who are at least six



months after a coronary occlusion with infarction and who are manifesting no signs of congestive heart failure, and who have angina of a sufficient severity to be incapacitated. Of course, when contemplating surgery upon these patients, the presence of cervical arthritis, chronic cholecystitis with cholelithiasis, hiatus hernia, and other non-cardiac causes of chest pain must be carefully ruled out.

#### SUMMARY

A very brief and incomplete discussion of some of the "closed" cardiac surgical

procedures currently used clinically has been presented.

The tremendous advances made during recent years in cardiac surgery can only be considered a tribute to literally hundreds and hundreds of physiologists, cardiologists, surgeons, and others who have wrestled with these problems. Thanks to the contributions of the anesthesiologist, the cardiac physiologist, and many others cardiac surgery is rapidly becoming a large and important part of the surgical armamentarium.



## The Present Status of Cardiac Surgery

### *With Special Reference to the Pump-Oxygenator Apparatus*

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The remarkable advances in the development and clinical application of the mechanical pump-oxygenator during the past few years have led to the successful repair of previously uncorrectable cardiac lesions in many patients. The apparatus permits unhurried and careful visual repair of most congenital intracardiac anomalies in a relatively bloodless field with the heart in a quiescent, flaccid state. The alternative and older methods, blind palpatory intracardiac finger and instrumental manipulations and open cardiectomy for a limited time under hypothermia, have led to notable advances in the correction or improvement of certain acquired and congenital disease states. Many of these achievements can still be considered significant even in the light of present day developments. However, the limitations and shortcomings of the older methods have long been recognized. Today there is universal agreement that an efficient and reliable pump-oxygenator is

an essential tool in the surgical armamentarium of all cardiac teams who desire to undertake treatment of major cardiac lesions.

The era of open heart surgery utilizing the mechanical heart-lung machine is still in the embryo stage. Most workers feel that additional improvements in the engineering design and construction of the apparatus are necessary before it can be used clinically with the degree of safety desired. A few contend that a number of the pump-oxygenators presently available satisfy the physiological hemodynamic needs of the patient while he is on the extra-corporeal circuit, and that the problems are mainly those of acquiring complete familiarity with the pathological anatomy of the often perplexing congenital anomalies and the development of better technics for their repair. A factor in the search for an efficient apparatus has been the not inconsiderable expense incurred in the construction and development of such a machine. The highly complex Gibbon apparatus (9), which has been rendered automatically self-regulat-

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ing by means of several photoelectrical sensing devices, represents in all likelihood the ultimate in overall efficiency and safety. However, owing to its high cost, only two Gibbon pump-oxygenators of this type are in clinical use at present.

Cardiac surgery finds itself in the transition phase between the era of the old and the new technics. To date, there is insufficient data to permit a valid comparison of the results of treatment of a specific lesion by the various technics. It appears likely that some of the proven older technics, notably mitral valvulotomy, will continue to enjoy favor. However, even in an accepted procedure as mitral commissurotomy, it is certain that investigators will resort to the pump-oxygenator in cases of mitral stenosis complicated by the presence of calcified valves and associated mild to moderate insufficiency in which the results of the standard operation have been relatively poor. Other procedures, such as aortic and pulmonary valvulotomy, are even more susceptible to replacement by better open procedures.

It appears inevitable that some of the congenital cardiac anomalies, such as the ventricular septal defect and atrioventricularis communis, will be universally treated by use of the extra-corporeal circuit in the near future. A few surgeons have utilized a combination of hypothermia and cardiac asystole or perfusion of the coronary bed with arterial blood, but these methods represent a passing phase in the evolution of cardiac surgery. A more controversial issue is that regarding the treatment of tetralogy of Fallot. Lillehei and Kirklin (2), who have an extensive experience with open heart surgery, feel that a complete repair should be done, consisting of closure of the ventricular septal defect and resection of the infundibular obstruction. However, others who have enjoyed considerable success in the closure of ventricular septal defects have encountered failure in the treatment of this anomaly by the complete procedure. Pertinent to this discussion is an analysis recently conducted by the American College of Chest Physicians of the operative results in 4,062 patients with tetralogy of Fallot. The oper-

ative mortality was 17 to 19 per cent in 2,250 patients in whom the Blalock-Taussig, Potts-Smith and Brock procedures were performed, with good results in approximately 80 per cent of the survivors. Infundibulectomy, with 67 cases recorded, had a mortality rate of 26.7 per cent and a slightly lower ratio of good to poor results. There was a 40 per cent mortality in 122 cases of direct vision repair but 80 per cent of these came from two institutions. At these centers the mortality averaged 28 per cent. However, among the 20 remaining cases collected from nine hospitals, there was but one living patient, a mortality of 95 per cent. It should be mentioned that with increasing experience, the mortality at one of the centers has decreased from 28.5 per cent in 28 operations in 1956 to 9 per cent in 11 cases during the present year. The results in the survivors of this group were uniformly good. Mention should be made of the fact that the total repair of this anomaly is not infrequently complicated by narrowing of the pulmonary out-flow tract, and that technics to rectify this situation are in the process of development and evaluation. Thus, it would seem advisable to defer surgery for tetralogy of Fallot if the patient's condition warrants, in the anticipation that full correction can be achieved with a reasonably low risk in the future. For those whose status is one of progressive deterioration, one of the standard shunting operations is recommended unless it is felt the total clinical experience with cardiopulmonary by-pass justifies open heart surgery.

Yet another controversy indicating the presently unsettled nature of specific areas of cardiac surgery concerns the treatment of atrial septal defects. There are four tested technics currently employed in the closure of these fairly common defects. They consist of: closure under vision with the use of hypothermia and brief caval inflow occlusion or the pump-oxygenator; the blind palpatory repair with the Gross Well technic (3) or atrioseptopexy as variously modified by Bailey, Sondergaard, Lam and others. The results of the technics have been comparably good save in the ostium primum defects in which the overall mortality has been exceedingly high. Paradoxically the



highest death rates to date may be found with the technic of total bypass of the heart and lung, a failing attributable to the fact that some of the cardiac teams select an atrial septal defect during the early phase of their clinical experience with a mechanical pump-oxygenator. In the difficult atrial defects, such as those with literal absence of the entire septum or the complex atrioventricularis communis, wherein an ostium primum defect is associated with a high ventricular septal defect and deformed tricuspid and mitral valves, most surgeons advocate the use of an extracorporeal circuit. However, even proponents of the pump-oxygenator technic have remained with one of the older methods, as exemplified by Kirklin who still prefers the rubber well technic devised by Gross. Curiously, Gross himself prefers an atrioseptopexy for closure of the septum secundum defects, reserving his well technic for the more difficult defects. Thus an objective assessment of the various procedures in the treatment of an anomaly as common as the atrial septal defect is not yet feasible.

Certain of the congenital cardiac lesions have not yielded to treatment by present technics using the artificial heart and lung device. There has not been a single reported case of successful correction in complete transposition of the great vessels, although partial transposition of the pulmonary veins and vena cava has been performed. Technics are not yet available for repair of single ventricles, aortic atresia, Ebstein's disease, anomalous origin of the left coronary artery and other unusual varieties of congenital afflictions of the heart.

Obviously a great challenge for cardiac surgeons lies in the field of acquired heart disease, particularly incompetency of the aortic and mitral valves and coronary artery disease. Presently several technics are in clinical use but the results, although promising on paper, have not been entirely accepted. Among these are the Hafnagel ball-valve for aortic insufficiency, the purse-string technic of Glover for mitral insufficiency and the Beck and Vineberg procedures, ligation of the internal mammary artery and a modified thromboendarterectomy of the coro-

nary artery reported by Bailey in coronary artery disease. The operations in the last category have stirred a great deal of controversy as to their value and stimulated considerable experimental study to resolve this issue. The conclusions of several investigators have been in conflict and failed to settle this matter satisfactorily. Various approaches are in the process of experimental development and evaluation, and the hope of the solution to some of these problems would appear to lie in this direction.

Numerous investigators, many of whom have been overlooked in the acclaim bestowed upon those who have achieved success in the clinical field, have made valuable contributions of both an experimental and clinical nature in the development of the artificial heart and lung apparatus. Bjork (5) and Jongbloed (6) abroad and the teams of Gibbon (7, 8, 9) and Dennis (10, 11, 12) at University of Minnesota have performed much of the preliminary basic investigative work on the pump-oxygenator. As widely known, the teams of Lillehei, Varco and DeWall, (1, 13, 14, 15) Kirklin, Donald and Wood, (2, 16), and Kolff, Effler and Groves (17, 18, 19) have pioneered in the surgical treatment of patients with various cardiac anomalies by means of total by-pass of the heart and lung. To date, Lillehei and his associates have performed over 300 intracardiac operations with an overall mortality of 20 per cent. Other cardiac groups are compiling comparable records in their series of cases. Today, progress in this field has reached the stage where teams in institutions scattered throughout the country are carrying out visual heart operations utilizing pump-oxygenators of various designs.

As early as 1910 Alexis Carrel (20) had executed experimental intracardiac surgery under vision by occluding the vena cava for a minute or so. He expressed the opinion that using this method "in the case of mitral stenosis, it would be easy to make an incision of the valve." Among his ventures in the sphere of arterial grafting, he attempted to insert a graft between the descending aorta and the left coronary artery in one animal as a surgical treatment for coronary occlusive disease. He further envisioned the

possibility of inducing temporary cardiac arrest for intracardiac procedures. He wrote: "The safest method of performing a comparatively long operation would be to suddenly place the heart in a condition of anemia. It is well known that the heart loses its excitability very slowly and that, by using a proper method it can be revived after a long period of immobility. We do not know exactly for how long it is safe to keep the heart motionless, but the complete stopping of the circulation is more dangerous for the organism than for the heart."

In 1928 Dale and Schuster (21) described a double perfusion-pump intended to replace the heart and to carry on both the major and minor circulation. The two synchronously working pumps, which were of intricate design, could be rapidly and independently adjusted when working against widely different resistances so as to maintain equal output on the two sides. The Dale-Schuster pump was an important contribution to the field of cardiac physiology and so soundly and ingeniously designed that even today several investigators prefer this pump to any others available. Dennis (11) has adopted a modification of the Dale-Schuster pump in his heart and lung apparatus, having observed in 1951 that it consistently caused less hemolysis than the DeBakey roller type of pump, which is an integral component of the present Gibbon machine.

In 1933 Gibbs (22) reported on some pharmacological observations in cats relating to shock in which an artificial heart of his making was employed. The apparatus was connected to the vessels entering and leaving the heart in part through the ventricles and the blood was oxygenated in the cat's own lungs.

Gibbon (7, 8, 9) has pioneered in the development of an apparatus for maintenance of total cardiopulmonary function. It is of historical interest that his original object in devising such an apparatus was to sustain the circulation in the presence of massive pulmonary embolism which would otherwise be lethal. He reported in 1937 (7) that he was able to bypass the heart and lungs of cats for as long as 2 hours and 51 minutes, using a modified Dale-Schuster pump and an

oxygenator consisting of a vertical revolving cylinder in which oxygenation was accomplished by exposing a thin film of blood to a mixture of 95 per cent oxygen and 5 per cent oxygen. This was the first instance recorded in the literature in which a total bypass had been performed. Over the years he has experimented with various modifications, a venture which has not only been laborious and time-consuming but extremely costly. His latest model (9) consists of a vertical screen method of oxygenating blood and a pumping system of 3 DeBakey roller-type pumps. Oxygenation is achieved by filtering blood over six steel screens in parallel which is exposed to oxygen diffused into the enclosing plastic case. The apparatus automatically maintains a constant blood volume in the extracorporeal circuit during the perfusion by means of several photoelectric leveling devices which regulate flow and pressure through the various component parts of the circuit. It may be of interest to note that the highly skilled and gifted engineering staff of the International Business Machines Corporation were responsible for the design and construction of this intricate apparatus. More recently the Mayo Clinic (23) has built a similar apparatus and obtained outstanding success in its application to patients.

In 1951 before initiating the project of designing and constructing a pump-oxygenator, Dennis, Karlson, Westover and others (10, 11) conducted an intensive evaluation in the laboratory of 4 methods of oxygenation, comprising: the Kolff membrane apparatus; the slowly revolving horizontal cylinders; the vertical revolving cylinder of Gibbon and a revolving funnel. From their study they concluded that the vertical revolving cylinder was the most efficient of those tested, and adopted this as the oxygenating device on their original heart and lung apparatus. Oxygenation was accomplished by the same principle as in the Gibbon type pump-oxygenator by exposure of the blood, which was layered as a thin film on the inner surface of eight concentric steel cylinders, to oxygen blown in from the bottom of the cylinder. This group selected a modified Dale-Schuster pump as the artificial heart on their machine.



Bjork (5) developed an oxygenator consisting of a series of discs mounted upon a horizontal shaft to perfuse the brain of dogs. The blood was filmed on the periphery of the discs and arterialized in a manner similar to that in the revolving cylinder. More recently Kay, Cross and their co-workers (24) have constructed a rotating disc type reservoir-oxygenator resembling Bjork's. The oxygenator is composed of 59 discs of teflon supported on a steel rod within a plexiglas cylinder. The principle of arterIALIZING the blood is identical to that in the oxygenator of Bjork.

A simple method of supplying oxygen is to bubble oxygen through the blood contained in a reservoir or to pump the gas through the tubing of the perfusion circuit together with the blood. The foaming and bubbling resulting with the feared sequela of embolization thwarted the development of this simple oxygenating method. Clark, Gollan and Gupta (25) refined the foaming technic by-passing the venous blood through a "dispersion oxygenation apparatus", utilizing an antifoam agent (DC Antifoam A) and serial bubble traps to prevent propagation of the gas bubbles. One of the best known and probably the most frequently copied of the bubble type pump-oxygenators is that of DeWall (26). Extremely simple in principle and design and relatively inexpensive, it employs the "large-bubble" method of oxygenating the blood and a "finger-type" of pump," commercially sold as the Sigmamotor pump. This particular apparatus has been used extensively by Lillehei and his team at the University of Minnesota School of Medicine, utilizing the "low-flow" azygos principle, a concept which will be discussed subsequently in some detail. In the DeWall model, the venous blood is admixed with oxygen in a vertical mixing chamber producing large bubbles, which are then debubbled by contact with an antifoaming agent in an horizontal chamber. The blood is allowed to pool in a long spiral helix which serves both as an additional debubbling device and a reservoir, and returned through a filter system to the patient.

Kolff (17) has utilized the principle of diffusion of gases through a plastic

membrane and adopted his disposable artificial lung made of polyethylene to oxygenate the blood. Dissatisfied with the complications attending the bubble-type of oxygenator, Clowes and his associates (27) have created one dependent upon the same principle. They constructed a multiple-unit apparatus consisting of grooved separators supporting thin ethylcellulose membranes measuring 10 x 42 inches. The venous blood was layered on the plastic membrane and transmission of oxygen occurred through the membrane without the danger of fibrin or micro-bubble emboli. The Sigmamotor pump has been combined with the oxygenating apparatus of Kay and Cross (24), Kolff (17), Clowes (27) and others. Other means of oxygenating the blood are in the process of development. At present some 15 models of the mechanical heart and lung apparatus, several of which vary slightly in basic design, are in experimental and clinical use.

Regardless of the design, a satisfactory pump and oxygenator system must fulfill certain criteria. The oxygenator must fully and adequately arterialize the volume of desaturated blood in the brief time it takes to circulate through the extracorporeal circuit. The apparatus must cause a minimum of hemolysis and defibrination. The acceptable limit of hemoglobinemia, even after 60 minutes of perfusion, is below 100 mg. per cent.

The blood returning to the patient must be devoid of fibrin particles or bubbles. Although most systems have a filtering system to trap fibrin particles, some feel that it may be of little value and, in fact, predispose to fibrin embolization. The apparatus must provide for collection and return of coronary venous blood into the extracorporeal circuit, even though the technic of cardiac asystole is employed. The priming volume, the amount of donor blood needed to fill the circuit, should be as low as possible to minimize the danger of transfusion reactions and to ease the problem of finding large numbers of compatible donors. A satisfactory system should not require more than 1000 to 1500 c.c. for an infant or child and 2500 c.c. for an adult.

It has become increasingly desirable that the component parts of the apparatus

be sterilizable by autoclaving. The use of chemical agents other than 10 per cent formalin has been unsatisfactory and sterilization with formalin is a trying and disagreeable task. There must be provision for maintaining the blood at body temperature, cooling of the patient being held generally undesirable. Although a convenient method for measuring the flow rate instantaneously, as by a flow meter, is not generally incorporated in the circuit, it is obviously an highly desirable item. These are, in brief, the essential requisites of a good mechanical heart and lung apparatus.

A factor which has significantly influenced the design and rate of development of the pump-oxygenator has been the low flow principle. It had been assumed for many years that an artificial pump-oxygenator must of necessity be so conceived and constructed that it would circulate and oxygenate blood in amounts equal to the basal cardiac output, estimated to be 100 to 120 ml of blood per kilogram of body weight per minute. However, Andreason and Watson (28) had shown that dogs would survive at least 35 minutes of vena caval occlusion if the return through the azygos vein was left intact. Cohen and Lillehei (29) confirmed these observations and found that the quantity of blood flowing through the azygos vein was 8 to 14 ml. per kilogram of body weight per minute. This flow rate was less than 10 per cent of the estimated resting cardiac output for anesthetized dogs (165 ml. per kg. per minute). It would appear, however, that the azygos flow is close to the minimum required for temporary maintenance of the vital flows in a state which would permit full functional recovery.

In 1954, Lillehei, Varco, Cohen (1, 13, 14) and their associates applied the principle of azygos flow to operations in the open heart under relatively blood-free conditions in dogs and subsequently in patients. In lieu of a proven pump-oxygenator, they originally employed an human donor and then, for a brief time, isolated canine lungs as the oxygenating device. Their success marked the beginning of the era of direct vision intracardiac surgery using total bypass of the heart and lung.

Although Gibben and Dennis and their co-workers had successfully supplanted the function of the heart and lungs in dogs for periods up to 46 minutes with survival, they did not proceed to clinical trial of their technic on a wide scale. Dennis and his group (12) had unsuccessfully attempted bypass of the heart and lungs in two patients severely disabled from large septal defects. Sporadic case reports (30) of the application of the bypass technic had appeared in the literature, but it was not until the remarkable work of the Minnesota group that this approach became widely adopted.

General acceptance of the azygos flow principle as a guide in determining safe perfusion rates during extracorporeal circuit undoubtedly accelerated the development of other pump-oxygenators within a relatively short time. In large part due to the lower flow rates demanded, the oxygenating component of the apparatus developed by DeWall (15), Kolff (17), Kay and Cross (24) and others were far less complex in design and less expensive than those of their predecessors. Although many cardiac teams continue to employ pump oxygenators designed primarily for low perfusion rates, there is a growing belief even in this camp that an apparatus of the Gibbon-type or some other designed for high blood flow will eventually be preferable. There is increasing support for the view that patients do better on the extracorporeal circuit when the blood flow through the brain and vital organs approximates the basal cardiac output. The enviably good results reported by Kirklen and his group (16) at the Mayo Clinic, who employ a high flow apparatus, seem in part to substantiate this postulate. There is now a commercially available pump-oxygenator assembled by Gaernter and Kay (31) patterned after the Gibbon machine which, however, is not self-regulating. It seems fairly safe to predict that most surgical teams will resort to a high flow mechanical heart and lung apparatus in the near future.

In no other field of surgical endeavor has the need for repeated and coordinated trials in the experimental laboratory



by a team of workers been demonstrated as in the development and use of the pump-oxygenator. The performances and end results of the various apparatus in supporting the total cardiorespiratory function in the dog have been somewhat disconcerting. Although some workers utilizing various bypass apparatus have reported excellent survival rates, other competent investigators have had only mediocre success using similar pump and oxygenator machines.

Miller, Gibbon and Gibbon (9) in 1951 reported only 7 survivors of 21 animals which were maintained on the extracorporeal circuit for 20 minutes to 1 hour and 36 minutes on perfusion rates ranging between 52 and 150 c.c. per kilogram per minute. More recently Donald, Harshbarger, Hetzel and others (32) employing a similar high-flow apparatus had 9 of 10 dogs survive after total bypass for 30 minutes. Likewise, Kay and Gaertner (31) had 8 of 10 dogs live after cardiopulmonary bypass for 35 to 45 minutes on a Gibbon-type machine.

The bubble type of oxygenator has yielded a significantly higher mortality in dogs. DeWall (33) recently recorded 12 deaths in 70 experiments in which the blood flow was 16 to 50 c.c. per kilogram per minute. However, 10 of the survivors were detectably injured by the procedure. A recent study of approximately 180 experiments collected from the literature using the bubble oxygenator and the low flow principle revealed that the survival rate was about 50 per cent, although the procedures in some of the experiments were not confined to simple bypass or right ventriculotomy. The high rate of unexplained deaths in animals subjected to total cardiopulmonary bypass with the micro-bubble oxygenator prompted Stephenson and others (34) at Vanderbilt to carry out extensive metabolic studies in over 125 animals. Although alterations were found in the serum bicarbonate and potassium, no consistent explanation for the high mortality rate was forthcoming. A recent interesting study involving 53 animals would indicate that the bubble oxygenator may not be entirely suitable for high perfusion rates. The mortality rate was 41 per cent when the perfusion rate was 40 c.c. per kilogram per min-

ute and 100 per cent when the flow was increased to 70 c.c. Eighty percent of the latter group failed to recover from anesthesia, despite the fact that they appeared to be in better physiological balance during the run. However, when 2 pump-oxygenating systems were used to provide the 70 c.c. flow, 30 per cent of the animals lived. Evidence from this and other studies indicate that there may be inherent deficiencies in the bubbler-type of oxygenating apparatus when high perfusion rates are employed. The most plausible explanations for some of these deaths appear to be emboli either of fibrin particles or microbubbles to the brain. Clowes (35) and DeWall (33) have been cognizant of the formation of fibrin emboli with the bubble oxygenator with resultant cerebral damage. Dennis (10, 11) has long cautioned about the deleterious effects of foaming during oxygenation with the sequela of embolization and cerebral injury. Our experiments in 70 animals with the DeWall type of pump-oxygenator have given results comparable to those of others. Increasing the blood rate to 100-120 c.c. per kilogram has resulted uniformly in death of the animals.

Other types of mechanical heart and lung devices have had yielded good to fair results in animals. Kolff and his group (17) using the artificial lung oxygenator on 43 animals had 18 deaths. Cross and his associates (24) salvaged 18 animals in a series of 20 dogs after standardization of their technic with the rotating disc oxygenator had been achieved. Notwithstanding the mediocre results obtained in some of the series of experiments, investigators have proceeded to clinical application of their apparatus with considerable success.

The technic of performing bypass of the heart and lungs is essentially the same, regardless of the specific apparatus selected. Two thousand to 3000 c.c. of freshly drawn heparinized blood must be on hand and a liter or so of citrated blood to replace the losses sustained before and after the bypass run.

Monitoring of both the venous and arterial pressures and the electrocardiogram is generally done. In addition, some follow the electro-encephalographic

tracings throughout the perfusion period.

The chest is opened widely through a bilateral anterior incision in the 4th intercostal space. Depending on the policy of each team, trained personnel assemble and prepare the pump-oxygenator before or during thoracotomy. Exploration of the heart and the vessels leaving and entering both ventricles is conducted to confirm or establish the precise diagnosis. The surgeon may explore the interior of the chambers through the right auricle. Even in the absence of a definite preoperative diagnosis, the exploratory maneuvers should reveal the nature of the cardiac defect present. A search is made routinely for a patent ductus arteriosus which occurs with surprising frequency in association with other congenital anomalies, particularly ventricular septal defects. Failure to detect the presence of a patent ductus arteriosus results in severe flooding of the right side of the heart during cardiectomy and can end in disaster. In septal defects, tetralogy of Fallot, pulmonary valvular stenosis and other conditions, measurement of the pressure in the pulmonary and systemic arteries and the right ventricle when indicated is an essential part of the operation. If total bypass of the heart and lungs is to be instituted, the inferior and superior vena cavae and the left subclavian or a femoral artery are isolated and prepared for cannulation. Two to 3 mgm. of heparin per kilogram of body weight is injected intravenously prior to placement of the catheters. The catheters, as large as conveniently possible, are then inserted into the vena cavae through the right auricular appendage and the artery chosen for perfusion. It is desirable that the patient be placed on the extracorporeal circuit as soon as feasible after cannulation has been completed. Actual cardiopulmonary by-pass is initiated by tightening the tapes placed about the venous catheters. When its work load has been assumed by the artificial "heart", the enlarged, struggling heart is transformed into a quietly beating and smaller sized organ. The arterial pressure may fall to a mean of 60 to 70 mm. of mercury, but with high blood flow, the pressure often as not exceeds the pre-run level. From this point, there are

divergent views on two basic issues: the volume of blood that should be perfused and the question of elective cardiac arrest. The teams of Lillehei (15), Effler (18), Cooley (36) and others employ a perfusion rate of 40 to 70 cc. per kilogram per minute, the latter figure, in particular, being highly desirable for those under 1 year of age. Kirklin (2), Gibbon (9) and others favor a blood flow of 120 cc. per kilogram of body weight per minute depending on the adequacy of the venous return from the vena cavae, in short, a flow approximating the estimated basal cardiac output.

Surgeons in increasing numbers have adopted the technic of inducing cardiac standstill during cardiectomy. This adjunctive step constitutes one of the most important advances in the technic of open heart surgery. The paralyzed, flaccid heart permits easy visualization of the intracardiac defect or other abnormalities and facilitates the accurate placement of sutures without tension which aids in avoiding tears of the friable septal tissue. The incidence of damage to the conduction bundle has decreased. Moreover, the field is almost completely devoid of blood in most instances due to interruption of coronary arterial flow and hence, coronary venous return into the right atrium. Even in a patient with tetralogy of Fallot in whom retrograde bleeding from collateral bronchial channels into the pulmonary artery is a troublesome problem, the quantity of blood entering the heart has been appreciably lessened. The one major deterrent to routine employment of cardiac asystole is the fear that the heart may not resume its beat or that its action may be impaired due to prolonged cessation of cardiac activity. Ventricular fibrillation has frequently followed prolonged cardiac arrest in patients. There is experimental data to indicate that cardiac action may be weakened after protracted asystole due to formation of multiple thrombi in the smaller radicles of the coronary vessels.

Although Ringer described in 1883 the effect of potassium in causing standstill of the heart in diastole, the currently utilized method of inciting cardiac asystole by this ion is generally credited to



Melrose, Dryer, Bentall and Baker (37). These investigators reported in 1955 that when a mixture of potassium citrate solution and arterial blood is injected rapidly into the coronary arteries, cardiac arrest ensued which could be subsequently terminated by flushing out the potassium with arterial blood. Kolff, Effler and their associates (38) subsequently confirmed their findings in dogs and successfully transposed the technic to patients. The basic technic of Melrose remains unaltered. A combination of 2 cc. of 25 per cent potassium citrate solution and 18 cc. of arterial heparinized blood is rapidly infused into the base of the ascending aorta which has been cross-clamped distal to the site of injection. In a 15 kilogram child, 8 to 12 cc. of this mixture usually suffice to produce prompt asystole within 30 to 60 seconds.

A second mode of inducing arrest of the heart is the injection of acetylcholine chloride (39) in doses averaging 10 mgm. per kilogram of body weight into the coronary bed. The asystole is at times incomplete and not as prolonged as that caused by potassium as slow, intermittent and rhythmic contractions often persist. The effect of acetylcholine is often nullified within 15 to 20 minutes with spontaneous resumption of a vigorous heart beat. From the standpoint of safety, our experiments assessing both these agents indicate that acetylcholine is preferable. However, for prolonged and complete paralysis of the cardiac beat, potassium stoppage is superior. We have had considerable difficulty, in common with Kay and Cross (40) and others, reviving the heart of dogs after potassium induced arrest on the low flow apparatus. Because of the potential complications of intentional cardiac standstill, some surgeons, Lillehei and Kay and Cross among others, elect to operate on the beating heart in the uncomplicated case. An alternative method to nourish the coronary arteries without instituting arrest of the heart is to perfuse arterial blood in a retrograde manner through the coronary sinus (41). Whether cardiac arrest is induced or not, the right ventricle is opened by a long incision parallel to the septum extending to the proximity of the pulmonary valve. Retraction

is unnecessary when asystole is employed. The most common congenital lesion by far presently being corrected is the interventricular septal defect. The defect most commonly lies high in the septum posterior to the septal leaflet of the tricuspid valve and, less frequently, in the area of the crista supraventricularis. The technic of closure of these openings currently consists of the placement of an ivalon or plastic patch which is secured by a continuous suture or multiple interrupted sutures of silk.

Some surgeons feel that the period of extracorporeal shunting should be as brief as possible, preferably less than 30 minutes, to decrease the possibility of certain complications which may be attributable to prolonged by-pass of the heart and lungs. Others, notably Kirklin, are of the opinion that the meticulous and precise repair of the more difficult intracardiac anomaly will frequently require an hour or longer, and the pump-oxygenator must of necessity be capable of sustaining safely the circulation for this period of time. The unhurried, careful correction of the intracardiac lesion has received increasing emphasis now that the technic of performing a by-pass has become routine in the hands of many teams.

After the intracardiac manipulations have been completed, closure of the ventriculotomy incision is started. If elective cardiac arrest had been instituted, release of the aortic clamp restores coronary flow with immediate resumption of cardiac activity on most occasions. Not infrequently after periods of standstill exceeding 40 to 60 minutes, ventricular fibrillation develops which may revert spontaneously to a sinus rhythm as arterial blood continues to perfuse the myocardium.

A comparison of the pulmonary and systemic pressure before and after the intracardiac procedure yields valuable data as to the results which may be anticipated after operation. As a common example, an appreciable decrement in the pulmonary arterial pressure following closure of a ventricular septal defect associated with severe pulmonary hypertension generally signifies a favorable re-

sult. Conversely, little or no fall in the pulmonary pressure in a similar case is of ominous prognostic import similar to the situation which obtains in the closure of a balanced or reversed patent ductus arteriosus.

At the completion of the operation an estimate of the blood loss or gain is made. If the patient's blood loss has been properly replaced by citrated blood prior to the institution of the extracorporeal circuit, balance can be fairly accurately achieved since no actual blood loss should occur during the perfusion. A simple method of determining the status of the blood volume is to weigh the patient before and after operation. If an error is made in estimating the blood volume, it is safer to leave the patient slightly hypovolemic than hypervolemic.

Protamine sulfate in a dose equal to that of the heparin is administered over a 10 to 15 minute interval. The coagulation time should be within normal limits shortly after operation. Some groups perform protamine titration to determine more precisely the dose of the agent to be given.

Complications occurring during or shortly following cardiomy may at times demand immediate attention. Injury to the conduction bundle during repair of an atrial or ventricular septal defect is easily recognized on the electrocardiogram. If complete heart block occurs, the most effective therapy at present is to regulate the rate by means of an artificial pacemaker. A technique used by some is to bury a wire electrode made of silver or some other non-reactive metal into the right ventricle and place a second electrode in the soft tissues of the chest wall so as to reduce markedly the voltage transmitted to the patient. The heart block may be transient or permanent, often reverting to a sinus rhythm after a period of a week or two. The patient must be usually kept on the pacemaker during this period.

A troublesome complication during operation is hypotension of an appreciable degree persisting during or after cardiomy, which may be due to one of several factors. A fall in pressure may occur at the start or end of the perfusion.

At times, immediately after cardiomy, the cardiac activity may be impaired and require judicious use of calcium chloride or epinephrine. Failure to stabilize the arterial pressure in the immediate post-run and postoperative periods, in the absence of significant hypovolemia and atrioventricular conduction defects, usually portends a bad prognosis. The hypotension often indicates inability of the heart to adjust to the circulatory alterations induced by the operation, a condition frequently observed in patients with a ventricular septal defect associated with severe pulmonary hypertension and resistance. Such patients generally die within 12 to 24 hours after surgery.

Following operation the patient with a favorable lesion is usually improved if complete repair has been effected. However, consistently good results require alert and exacting care in the postoperative period. These patients, often precariously ill infants and children in the advanced stages of cardiac failure, may succumb momentarily of cardiac arrhythmias, progressive metabolic acidosis, anoxia from poor respiratory aeration and other complications. An alert team must be aware of all these possibilities. The difficulty in breathing and coughing due to pain from a bilateral thoracotomy, the pulmonary hypertension, which is frequently present and impaired cardiac predispose complications of the pulmonary system. Infants may require manual assistance with respiration for a period of time. The patient must be constantly observed to detect signs of a failing heart. The electrocardiogram should be monitored throughout the early phase of the postoperative period. A complication incompletely understood but widely discussed is that of metabolic acidosis. A relative respiratory alkalosis develops during perfusion when oxygen alone is used to oxygenate the blood as evidenced by the decrease of the carbon dioxide content of the arterialized blood.

Following the perfusion, a number of patients display a decrease in the pH of the blood and plasma bicarbonate and an increase in the fixed acids, particularly lactic acid (15), indicative of a compensated metabolic acidosis. In most instances, a moderate degree of acidosis ap-



pears to be harmless but in others, severe acidosis can be symptomatic and end in disaster. The impression has been gained that this complication occurs more frequently with cardiopulmonary by-pass using the low perfusion rate than the high flow. In anticipation of the development of a certain degree of acidosis, some teams routinely infuse sodium bicarbonate in doses of 2 to 4 meq per kilogram of body weight during the immediate postoperative period.

Presently the great majority of patients undergoing open cardiac surgery have some form of congenital heart disease, most frequently ventricular septal defects. Other cardiac anomalies which have been successfully repaired include: atrial septal defects, tetralogy of Fallot, atrioventricularis communis, total anomalous drainage of the pulmonary veins, pulmonary valvular and infundibular stenosis, aortico-pulmonary septal defect, rupture of congenital aneurysms of the sinus of Valsalva and other miscellaneous rare defects. A few patients having acquired heart disease, such as mitral insufficiency and aortic insufficiency have received surgical treatment with total cardiopulmonary by-pass but the technic of repair and results have not proven entirely satisfactory. The surgery of acquired heart and coronary artery disease remains a challenge for the future.

The mortality rate of open cardiectomy under total by-pass of the heart and lungs, as in any new operative technic, has been necessarily higher in the early phase of its clinical application. Further, in recognition of this fact, surgeons have selected the poorest risks available for this procedure, patients who are in severe congestive failure from their disease. In the face of these factors, the mortality rate reported has been encouraging, and in many instances, remarkably good. Without detailed breakdown of the various entities treated by the cardiopulmonary by-pass method, it has been found that the over-all mortality recorded in the literature range in the vicinity of 20 to 40 per cent. As regards the closure of ventricular septal defects in general, the mortality rates of Lillehei (1, 13), Kirklin (16), Cooley (36), Kay and Cross (40)

and others with a significant number of cases have ranged from 16 to 32 per cent. However, there has been a significant decrease in mortality with increasing experience with this technique. Kirklin (16) has reported but one death in the last 14 patients with ventricular septal defects. Other surgeons have reported similar improvement in the more recent cases. Thus, it would appear that as the surgical teams acquire increasing proficiency with this procedure, the mortality rate should be comparable to those quoted for other operations of similar magnitude which are accepted today as commonplace.

#### Bibliography

1. Lillehei, C. W., Cohen, M., Warden, H. E., Read, R. C., Aust, J. B., DeWall, R. A. and Varco, R. L.: Direct Vision Intracardiac Surgical Correction of Tetralogy of Fallot, Pentology of Fallot, and Pulmonary Atresia Defects; Report of First Ten Cases, *Ann. Surg.* 142:418, 1955.
2. Du Shane, J. W., Kirklin, J. W., Patrick, R. T., Donald, D. E., Terry, H. R. Jr., Burchell, H. B. and Wood, E. H.: Ventricular Septal Defects with Pulmonary Hypertension: Surgical Treatment by Means of a Mechanical Pump-Oxygenator.
3. Gross, R. E., Watkins, E., Jr., Pomeranz, A. A., and Goldsmith, E. I.: A Method for Surgical Closure of Interauricular Septal Defects, *Surg., Gyn. and Obst.* 96:1, 1953.
4. Watkins, E., Jr. and Gross, R. E.: Experiences with Surgical Repair of Atrial Septal Defects. *J. Thor. Surg.* 30:469, 1955.
5. Bjork, V. O.: Brain Perfusions in Dogs with Artificially Oxygenated Blood, *Acta chir. scandinav.* 96 suppl. 137, 1948.
6. Jongbloed, J.: The Mechanical Heart-Lung System. *Surg., Gyn. and Obs.* 89:684—691 (Dec.) 1949.
7. Gibbon, J. H., Jr.: Artificial Maintenance of Circulation During Experimental Occlusion of Pulmonary Artery, *Arch. Surg.* 34:1105, 1937.
8. Gibbon, J. H., Jr.: The Maintenance of Life During Experimental Occlusion of the Pulmonary Artery Followed by Survival, *Surg., Gyn. and Obst.* 69:602, 1939. Gibbon, J. H., Jr.: An Oxygenator with a Large Surface—Volume Ratio, *J. Lab. and Clin. Med.* 24:1192.
9. Miller, B. J., Gibbon, J. H., Jr., and Gibbon, M. H.: Recent Advances in Development of Mechanical Heart and Lung Apparatus, *Ann. Surg.* 134:694, 1951.
10. Karlson, K. E., Dennis, C., Westover, D. E., and Sanderson, D.: Pump-Oxygenator to Supplant the Heart and Lungs for Brief Periods: I. Evaluation of Oxygenator Technique; An Efficient Oxygenator, *Surg.* 29:678, 1951.

# THE PRESENT STATUS OF CARDIAC SURGERY

11. Dennis, C., Karlson, K. E., Eder, W. P., Nelson, R. M., Eddy, F. D. and Sanderson, D.: Pump-Oxygenator to Supplant the Heart and Lungs for Brief Periods. II. A Method Applicable to Dogs, *Surgery* 29:697, 1951.
12. Dennis, C., Spreng, D. S., Jr., Nelson, G. E., Karlson, K. E., Nelson, R. E., Thomas, J. V., Eder, W. P. and Varco, R. L.: Development of a Pump-Oxygenator to Replace the Heart and Lungs: An Apparatus Applicable to Human Patients and Application to One Case, *Anns. Surg.* 184:709, 1951.
13. Lillehei, C. W., Cohen, M., Warden, H. E. and Varco, R. L.: Direct-Vision Intracardiac Correction of Congenital Anomalies by Controlled Cross Circulation: Results in Thirty-Two Patients with Ventricular Septal Defects, Tetralogy of Fallot and Atrioventricular Communis Defects. *Surg.*: 38:11, 1955.
14. Lillehei, C. W., Cohen, M., Warden, H. E., Ziegler, R. N. and Varco, R. L.: Results of Direct Vision Closure of Ventricular Septal Defects in Eight Patients by Means of Controlled Cross Circulation. *Surg., Gyn. and Obs.* 101:446, 1955.
15. DeWall, R. A., Warden, H. E., Gott, V. L., Read, R. C., Varco, R. L. and Lillehei, C. W.: Total Body Perfusion for Open Cardiotomy Utilizing the Bubble Oxygenator, *J. Thorac. Surg.* (Nov.) 32:591, 1956.
16. Kirklin, J. W., Donald, D. E., Harshberger, H. C., Hetzel, P. S., Patrick, R. T., Swan, H. J. C. and Wood, E. H.: Studies in Extracorporeal Circulation. I. Applicability of Gibbon - Type Pump - Oxygenator to Human Intracardiac Surgery: 40 Cases. *Anns. Surg.*, 144:2, 1956.
17. Kolff, W. J., Effler, D. B., Groves, L. K., Peereboom, G., and Moraca, P. P.: Disposable Membrane Oxygenator (Heart - Lung Machine) and its use in Experimental Surgery, *Cleveland Clinic Quart.* 23:69, 1956.
18. Effler, D. B., Groves, L. K., Sones, F. M., Jr., and Kolff, W. J.: Elective Cardiac Arrest in Open-Heart Surgery: Report of Three Cases. *Cleveland Clinic Quart.* 23:105, 1956.
19. Effler, D. B., Kolff, W. J., Groves, L. K. and Sones, F. M., Jr.: Disposable Membrane Oxygenator (Heart-Lung Machine) and Its Use in Experimental Surgery. *J. Thor. Surg.* 32:620, 1956.
20. Carrel, A.: On the Experimental Surgery of the Thoracic Aorta and the Heart, *Ann. Surg.*, 52:83, 1910.
21. Dale, H. H. and Schuster, E. H. J.: A Double Perfusion Pump, *J. of Physiology*, 64:356, 1928.
22. Gibbs, O. S.: An Artificial Heart, *J. Pharmacolo. & Experi. Therape.*, 38:197, 1930.
23. Jones, R. E.; Donald, D. E.; Swan, H. J. C.; Harshbarger, H. G.; Kirklin, J. W. and Wood, E. H.: Apparatus of the Gibbon Type for Mechanical Bypass of the Heart and Lungs, *Proc. Staff Meetings of the Mayo Clinic*, 30:105, March 23, 1955.
24. Cross, F. S.; Berne, R. M.; Hirose, Y.; Jones, R. D. and Kay E. B.: Evaluation of a Rotating Disc Type Reservoir-Oxygenator, *Proc. of the Society for Experi. Biology and Med.*, 93:210, 1956.
25. Clark, L. C.; Gollan, F. and Gupta, V. B.: The Oxygenation of Blood by Gas Dispersion, *Science*, 111:85, 1950.
26. DeWall, R. A.; Warden, H. E.; Read, R. C.; Gott, V. L.; Ziegler, N. R.; Varco, R. L. and Lillehei, C. W.: A Simple, Expendable, Artificial Oxygenator for Open Heart Surgery, *Surgical Clinics of North America*, 36:1, 1956.
27. Clowes, G. H. A.; Hopkins, A. L. and Neville, W. E.: An Artificial Lung Dependent Upon Diffusion of Oxygen and Carbon Dioxide Through Plastic Membranes, *J. Thorac. Surg.*, 32:630, 1956.
28. Andreason, A. L. and Watson, F.: Experimental Cardiovascular Surgery "the Azygos Factor", *Brit. J. Surg.*, 39:548, 1952.
29. Cohen, M. and Lillehei, C. W.: A Quantitative Study of the "Azygos Factor" During Vena Caval Occlusion in the Dog, *Surg. Gyn. & Obst.*, 98:225, 1954.
30. Helmsworth, J. A.; Clark, L. C.; Kaplan, S. and Sherman, R. T.: An Oxygenator-Pump for Use in Total By-pass of Heart and Lung, *J. Thorac. Surg.*, 26:584, 1953.
31. Kay, J. H. and Gaertner, R. A.: A Simplified Pump-Oxygenator with Flow Equal to Normal Cardiac Output, *Surgical Forum, American College of Surgeons*, 1956.
32. Donald, D. E.; Harshbarger, H. G.; Hetzel, P. S.; Patrick, R. T.; Wood, E. H. and Kirklin, J. W.: Experiences with a Heart-Lung Bypass (Gibbon Type) in the Experimental Laboratory, *Proc. Staff Meetings of the Mayo Clinic*, 30:113, March 23, 1955.
33. DeWall, R. A.; Warden, H. E.; Varco, R. L. and Lillehei, C. W.: The Helix Pump-Oxygenator, *Surg., Gyn. & Obst.*, 104:699, 1957.
34. Stephenson, S. E., Jr., Sawyers, J. L.; Holcomb, G. L.; Gollan, F.; Daniel, R. A., Jr., and Scott, H. W., Jr.: Metabolic Changes Associated with the Use of the Micro-bubble Type Pump-Oxygenator Under Normothermic and Hypothermic Conditions. *Surgical Forum, American College of Surgeons*, 1956.
35. Clowes, G. H. A.; Neville, W. E.; Hopkins, A.; Anzola, J. and Simeone, F. A.: Factors Contributing to Success or Failure in the Use of a Pump Oxygenator for Complete By-pass of the Heart and Lung, *Experimental and Clinical, Surgery*, 36:557, 1954.
36. Cooley, D. A., Belmonte, B. A., DeBakey, M. E., Latson, J. R.: Mechanical Heart-Lung for Temporary Cardiopulmonary By-pass, Report of 95 cases. *Texas J. Med.* 53:397-400, June, 1957.
37. Melrose, D. B., Dreyer, B., Bentall, H. H., and Baker, J. B. E.: Elective Cardiac Arrest. *Lancet* 2.21-22, July 2, 1955.
38. Kolff, W. J., Effler, D. B., Groves, L. K., Peereboom, G., Sones, F. M.: Elective Cardiac



- Arrest by the Melrose Technic: Potassium Asystole for Experimental Cardiac Surgery. *Cleveland Clinic Quart.* 23:98, 1956.
39. Sergeant, C. K., Groghan, T. and Lam, C. R.: Further Studies in Induced Cardiac Arrest using the Agent Acetylcholine. Presented at Surgical Forum, American College of Surgeons, 1956.
40. Cross, F. S., Kay, E. B.: Direct Visum Repair of Intracardiac Defects Utilizing a Rotating Disc Reservoir-Oxygenator, *Surg., Gyn. and Obs.* 104:711-716, June, 1957.
41. Lillehei, C. W., DeWall, R. A., Gott, V. L. and Varco, R. L.: The Direct Vision Correction of Calcific Aortic Stenosis by Means of a Pump-Oxygenator and Retrograde Coronary Sinus Perfusion. *Disease of Chest.* 30:123, 1956.



## Some Present Concepts in Pulmonary Surgery

FRED J. GRAY, JR., M. D.\*

Today the thorax is entered with the same ease and assurance of survival as the abdominal cavity. Mortality rates should be about five per cent, and major complications—i. e., empyema, bronchopleura fistula, etc.—should be about ten to twelve per cent. In some hands it is less. It is not showing off to discharge a patient on the seventh postpneumonectomy day. There is practically no risk involved. With this assurance several concepts of surgical indications in pulmonary disease are accepted today that could not be justified fifteen years ago. One is that exploratory thoracotomy is the most certain, the safest, and the most truly conservative diagnostic means in pulmonary disease not solved in a reasonably short period of time by more time honored methods. The approach may vary from an extensive exploration for suspected malignancy to limited exposure and exploration with biopsy of lung or pleura the primary purpose.

A second concept is that resection should be employed where pulmonary tissue is so anatomically altered by disease that healing is incomplete leaving cavity, contracted lobes, or obstructed bronchi or foci of infection behind. These result from such diseases as pulmonary tuberculosis, coccidioidomycosis, histoplasmosis, lung abscess, Friedlander's pneumonia, bronchiectasis, organising pneumonia, Middle Lobe Syndrome, etc. The

third concept is an extension of the second, prophylactic operation for quiescent disease. This is applied most often in pulmonary tuberculosis, and bronchiectasis; also prophylactic decortication of lungs which fail to re-expand following therapeutic or spontaneous pneumothorax even though infection is not present at the time.

In addition to these somewhat philosophical considerations attention must be given to certain specific diseases because of their importance.

### BRONCHIOGENIC CARCINOMA

There is little doubt in the mind that the increase in incidence of bronchiogenic cancer in men is not merely apparent but is real. At the present time many cancer clinics and hospitals have found that bronchiogenic carcinoma is the most common cancer in males, and, in all probability within the next ten or twelve years if the present trend continues, the Bureau of Vital Statistics will reflect this change. In the past fifteen years although the operative mortality in excisional surgery for cancer of the lung has been reduced from 30 per cent to approximately 5 per cent we have not found an appreciable increase in the five year survival rate. The statistical breakdown is still approximately as follows: 30 to 40 per cent inoperable at the time of first visit; 30 to 40 per cent inoperable at the time of thoracotomy; only 20 to 30 per cent resectable with an idea of cure. Needless to say the entire

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five year survival group following surgery falls in this last relatively small percentage. However, of those cases that are resected with an idea of cure, the five year survival rate runs 22 to 25 per cent. Certainly our efforts must be directed toward increasing the size of this group.

It has been generally found that the resectability rate of asymptomatic cancer is much higher than when symptoms bring the patient. Exploration of the asymptomatic undiagnosed lesion of the lung found on x-ray is mandatory. No one reports less than 20 per cent of these lesions malignant. One cannot honestly be less eager to open the thorax on suspicion than explore the abdomen or incise the breast.

Recently Dr. Richard Overholt of Boston reviewed some 51 cases which had survived for 5 years following resection for cancer of the lung. In searching for a common denominator or other indication as to why these patients survived where others did not, he came up with only one statement. All had surgical excision of the lesion.

#### PULMONARY TUBERCULOSIS

The past ten years has seen a remarkable change in the attitude toward treatment of pulmonary tuberculosis. During this period widespread use of antimicrobial therapy has taken place and resection of anatomically destroyed areas of lung tissue following tuberculous infection has become commonplace. A recent report by Hirdes and Stegarhoeck of over 700 consecutive resections for pulmonary tuberculosis revealed a mortality of only 3-5 per cent; but most remarkable was the fact that 92 per cent of all postresection patients were well without relapse after follow-up of two to five years. This is quite different from the probable 50 per cent relapse in medically arrested disease of a similar type, i. e., persistent cavity although the sputum may be negative, or contracted segments or lobes, or persistent massive disease which always on section shows a wall of fibrous tissue containing caseous material. Here let us state that a cavity is a cavity, whether it contains air or the necrotic debris resulting from the disease process, and most of these cavities have a bronchial communi-

cation or a potential bronchial communication. The concept of the open negative patient, i. e., a patient with cavities with negative sputum has come into prominence because this has been possible with exhaustive use of antimicrobial drugs. However, the concept that these patients are healed is a myth.

Drug therapy in pulmonary tuberculosis is presently limited to several combinations of three drugs: streptomycin 1 gram weekly with para aminosalicylic acid (PAS) 12 grams daily; or, streptomycin 1 gram twice weekly and isonicotinic acid hydrazide (INH) 300 milligrams daily; or, INH 300 milligrams daily and PAS 12 grams daily. There is some reason to believe that INH and PAS combination is perhaps the best and certainly it is the most easily administered. However, all three combinations are almost equal in their ability to control disease. Additional drugs such as cycloserine, pyrazinamide, viomycin are not very effective save as supplementary drugs for short periods of time, principally because the toxicity to the patient and the rapid development of resistance to these drugs by the organism. Others such as streptovivocin have not had sufficient clinical trial.

In brief summary, let us say that the treatment of pulmonary tuberculosis must be initially bed rest and isolation with the addition of antimicrobial regimens. If within approximately six months healing has not taken place and anatomically altered lung tissue remains behind, then resection is carried out.

Because of the very low relapse rate in surgically treated patients, prophylactic resection is indicated in many young people. This would, of course, include the tuberculoma as well as areas of disease in patients who are apparently arrested.

We could not complete this without mention of an apparently new disease which may or may not be related to pulmonary tuberculosis. This disease has not responded well to the usual course of treatment for pulmonary tuberculosis and has been found to be due to an atypical chromogenic mycobacterium almost identical in appearance to the micobacterium



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of tuberculosis but different in its cultural characteristics. Too little is yet known of this disease to know anything about its epidemiology, the final outcome of patients, or what practical treatment must be carried out. We are not even certain that this is not a variant of tuberculosis caused by a variant of the *Mycobacterium* of tuberculosis.

#### BRONCHIECTASIS

Bronchiectasis is not the disease it once was. The stunted, anemic, foul smelling, coughing and expectorating patient often suffering from amyloidosis is rarely seen today. Several factors have influenced this, not the least of which is a wider dissemination of knowledge of the value of proper therapy among the laity as well as the medical profession. Better communication and higher standards of living have been important, but although we know it is great, we still do not know the magnitude of the impact of the antibiotics on this disease. Surely many cases of bronchiectasis are prevented or aborted by antibiotics. Many more are prevented from progressing rapidly and are often obscured and not diagnosed. Certainly it is no longer true that a child with bronchiectasis at fifteen has a life expectancy of only twenty years if not submitted to surgical therapy. But in spite of persistent rumors, the disease is not reversible. The complications such as lung abscess, empyema, brain abscess, although reduced greatly, still lurk in the shadow. The cost in money and loss of income is usually greater with medical suppression of symptoms than with surgical treatment of the disease.

Bronchiectasis is still a surgically managed disease. There is no cure. Good results can be obtained however if lung, bearing the diseased bronchi, is removed. Young people with limited disease should have surgical therapy, even staged bilateral resections if necessary. Older patients and patients with asthmatic bronchitis in addition, must be evaluated carefully for results are likely to be less favorable. Postural drainage, expectorants, bronchial spasmolytic agents, and broad spectrum antibiotics, judiciously employed can give great relief.

#### CYSTIC DISEASE

This is a most confusing situation if one tries to classify the lung cyst by reading the literature. But an attempt may be helpful. There is no problem with the non-aircontaining group. They appear to be tumors on x-ray examination and appear to involve the mediastinum, hilum, or occasionally the lung. They are probably of bronchiogenic origin, and congenital, and they are excised because of difficulty in differential diagnosis, or because they can become infected or cause symptoms from pressure. So called aircontaining cysts in older people are probably all emphysematous in nature. Surgical removal of these space occupying cysts must be applied very cautiously for symptoms arising from the underlying disease and those from pressure exerted by the cyst itself are not easily differentiated.

Cystic changes in children often follow pneumonia, particularly those due to the staphylococcus, and they respond to treatment of pneumonia and close observation. In infants, however, congenital cysts do occur, and if the history of infection is not convincing, and the cysts are symptomatic, excision is indicated. Simply put, some require surgery, some do not. Operate on those who do.

#### SPONTANEOUS PNEUMOTHORAX

An aggressive approach to spontaneous pneumothorax will save time, money, and worry. The use of a catheter or special needle and an underwater seal in the initial phase will save weeks in the recovery and rehabilitation. And the fusion of lung to chest wall after the excision of blebs in recurrent cases or chronic leaks will prevent recurrences on that side. We prefer to do a partial pleurectomy.

#### MIDDLE LOBE SYNDROME

This term seems to be here to stay but I think a better term might be lymph nodal bronchial obstruction, for it can occur in any lobe or segment. The symptoms are those of recurrent infection, pneumonias, cough, and hemoptysis always arising from the same area, most commonly in the middle lobe. Diagnosis can be made on serial plane x-ray films and it is confirmed by bronchograms, exploratory thoracotomy, or sometimes

bronchoscopy. The treatment in chronic cases is excision of the lobe or segments.

#### LUNG ABSCESS

With present day antibiotic therapy about 60 per cent of lung abscesses can be cured without surgery. However, treatment must be specifically directed and the antibiotic must be selected on the basis of response of the lesion. Then it should be continued for a period of six to eight weeks. Sometimes even longer. If the abscess has not cleared completely within that period of time, or if there is a recurrence shortly after termination of therapy, then exploratory thoracotomy and excision of the lesion should be carried out. One should not necessarily de-

lay this long in people over the age of thirty-five because of the high incidence of bronchiogenic carcinoma as an underlying cause.

Other more rarely seen lesions such as pulmonary arterio-venous fistula, lipoid granuloma, and rare tumors are surgically excised because of potential or immediate hazard to the patient.

In summary, surgery is more widely and successfully applied in various pulmonary lesions today than formerly. The injudicious "wait-and-see" approach, never reasonable in diagnostic problems, is now falling out of favor in many inflammatory lesions.

## ♦ *What's* NEW ♦

### Progress in Cardiovascular Surgery

PETER O. THOMAS, M.D.\*

Cardiovascular surgery is a new frontier. To the older surgeon, the times are reminiscent of Cushing's early work in neurosurgery. To the younger surgeons, this new field has the appearance of the last great surgical world to conquer.

It is often forgotten that many of the principles of cardiovascular surgery are not new. In 1902, Sir Lauder Brunton (1) advocated the resection of a stenotic mitral valve. The first experimental work done in this direction was conducted in 1922 by Drs. Graham and Allen (2) at Washington University in St. Louis. In 1925 Henry Souttar (3) of London performed the first finger fracture commissurotomy using an auricular approach. His patient recovered and lived several years.

In the next twenty years there were practically no new developments in the entire field. The need for effective anesthesia, bacteria control and diagnostic

tools had yet to be developed. It was not until 1946 that Charles Bailey (4) of Philadelphia duplicated Souttar's work with a finger fracture commissurotomy.

#### CARDIAC CATHETERIZATION

Klein (5) of Prague first used cardiac catheterization techniques to determine the cardiac output utilizing the Fick Principle. The clinical application of this procedure was established by Cournand who received a Nobel Prize for his work this past year.

#### AORTOGRAPHY

The technique of Aortography was first established by Dos Santos (6) in 1929, using a translumbar approach. Robb and Steinberg (7) extended the procedure in 1938 as a means of visualizing the chambers of the heart. This field has been fully exploited in the Scandinavian countries. Technical development of roentgenographic equipment has kept pace and today machines are available which

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will take a series of timed exposures on a roll of film much like a movie camera.

It is significant that the use of aortography in arteriosclerosis appears to be waning. DeBakey (8) states that he has found less use for this procedure as his experience with lesions of the abdominal aorta has increased. He warns of the possible hazards of the technique and emphasizes that the results may be misleading at times.

#### MITRAL VALVULAR DISEASE

The surgical treatment of mitral stenosis was the first major successful operation performed through a cardiectomy. The procedure is now well perfected and several thousand cases have been done in this country alone. The two techniques of finger fracture and valvulotome commissurotomy are still performed.

Urrichio (9) has warned of the fatal consequences of mitral commissurotomy when coexisting aortic valvular disease is present. He showed that mitral stenosis had a compensating value in aortic stenosis. The aortic valve should be repaired first so that it might adequately discharge the increased blood flow to the left ventricle that accrues after a mitral commissurotomy.

As experience is built up the indications for mitral valve surgery have broadened. A few years ago great care was taken to select patients for surgery. Harken (10) would not operate if the patient was over 40 years of age, had auricular fibrillation or if there was associated aortic disease or valvular insufficiency. He took great pains to rule out valvular calcification and active rheumatic disease. In more recent times, the surgical indications tend to encompass practically all age groups that are symptomatic and in which there is no active disease present. The presence of a marked degree of mitral insufficiency is the chief contraindication for surgery today.

Enough time has now elapsed and enough cases have been examined to conclusively say that recurrent mitral stenosis after an adequate commissurotomy is a rare occurrence. Cardiac surgeons are of the unanimous opinion that the original surgery was not adequate or else the surgery was performed during a phase of active rheumatic carditis (11).

In contrast to the favorable results in surgery for mitral stenosis, there have been no similar advances in surgery for mitral insufficiency that have withstood the test of time.

The methods that have been tried for mitral regurgitation are usually based on the principle of constricting the annulus after the method of Glover and O'Neill (12). A heavy purse-string suture is placed about the annulus or else a baffle is constructed between the mitral leaflets as advocated by Bailey (13). Lucite balls and spindles, papillary muscle grafts and cartilage stents have been used with variable success.

#### TRANSPOSITION OF THE GREAT VESSELS

The most common cause of death due to congenital cardiac anomaly in infancy is transposition of the great vessels. It is also the most common cause of cyanosis in infancy. The first effective surgical study of this problem was done in 1950 by Blalock and Hanlon (14). In conjunction with their work on tetralogy of Fallot, they tried to relieve the cyanosis in transposition by creating an inter-atrial septal defect. In infancy, this usually overloaded the pulmonary circuit and death soon followed.

Some of the Scandinavian surgeons (15) have transected the aorta below the coronary vessels and transposed the pulmonary artery and aorta with the coronaries attached. A more practical approach has been advocated by Baffles (16) who has successfully rendered patients asymptomatic by anastomosing the inferior venaecavae to the left auricle by means of a homograft and also anastomosing the right pulmonary vein to the right atrium. With the development of extra-corporeal circulatory systems, the technical aspects of the surgical correction of the transposition is within our reach but the problem of the coronary circulation still remains to plague us.

#### ANOMALOUS VENOUS RETURN

This anomaly is often associated with other intra-cardiac abnormalities, particularly septal defects. This is to be expected since in many cases only the compensating factor of the septal defects allows life to be sustained. The pulmonary veins may drain into almost any part of

the right heart including the coronary sinus. If there is a complete anomalous drainage of the pulmonary venous blood, the left atrium may be rudimentary and often is found to be nothing more than a pasageway to shunt the blood into the left ventricle. Total anomalous pulmonary venous drainage gives a characteristic mediastinal bulge that roughly looks like a figure of eight on a routine chest film. Sometimes, a left superior venae cavae can be outlined (17). The management of this condition has been approached from two angles (18). One operation oversews the wall of the right atrium as a hood over the pulmonary vein opening. This, in effect, shunts the blood directly through the foramen ovale and thus separates the pulmonary blood from the unoxygenated right atrial inflow. The second approach to the problem involves the placing of a graft between the pulmonary vein and the left atrium.

#### HYPOTHERMIA

One of the major advancements made in cardiovascular surgery was the use of hypothermia. This technique allows the surgeon increased time to carry out his exploratory and corrective procedures.

#### AORTIC VALVULAR DISEASE

Even optimistic cardiovascular surgeons are disappointed with the present methods of correcting aortic stenosis. In the first place they are often calcified; they occur in the older age group and they often produce a state of insufficiency when the stenosis is relieved. The blind techniques have been largely replaced by techniques that directly expose the valve. The most important recent contribution was the work of Lewis and Shumway (19), who disproved the previously held conception that air from an open aortotomy would be quickly sucked into the coronary arteries. They demonstrated that with the absence of a coronary circulation, air emboli did not occur. A great deal of experimental work has been done in devising a prosthetic aortic valve but the original devise of Hufnagel (20) has not been improved. This valve is a plastic case enclosing a ball which can seat itself in its base so as to allow only a unidirectional flow. Hufnagel perceived that such a valve could

be inserted into the aorta to prevent aortic regurgitation. He inserts the valve distal to the left subclavian artery in the descending thoracic aorta. This controls approximately 60 per cent of the regurgitating jet while at the same time the back flow from the great vessels of the head and upper extremities provide blood for the coronaries. It should be understood that such a valve decreases the oxygenated blood supply to the myocardium and in some far-advanced cases of myocardial dilation and hypertrophy, this diminution in oxygenation cannot be tolerated. The beneficial effects from such a procedure rests solely on breaking the vicious cycle of ventricular dilation and myocardial overwork. In conjunction with the insertion of the valve into the transected aorta, a device had to be perfected to prevent leakage from necrosis of the suture line. This problem was solved by using a plastic rim in which the inner surface formed toothlike projections. These multiple point fixations of the aorta to the prosthesis allows for a strong fixation without necrosis.

Direct surgical exploration of the aortic valves is a surgical reality today. The surgical time has been lengthened by using various techniques for supplying the myocardium with blood (21). The most commonly used technique today is to cannulize the coronary sinus in the right atrium and to perfuse the sinus in a retrograde fashion. The myocardium can be oxygenated while surgery is being performed on the left side of the heart. This technique, in conjunction with extra-corporeal pump oxygenator systems, has wide application in surgery of the ascending aorta and the left side of the heart. Recent experimental techniques in surgery of the coronary arteries also use this retrograde perfusion method. It undoubtedly represents a major advance in cardiac surgery.

#### EXTRA-CORPOREAL CIRCULATION SYSTEMS

The newest and most promising major advance in cardiac surgery is the perfection of dependable pump-oxygenator systems outside the body. The advantages of such systems are obvious. They would theoretically take the need for haste out of cardiac surgery. They can also be used



to sustain a patient for a great length of time while abnormal myocardial states are being corrected. In conjunction with coronary perfusion, the myocardium can be maintained in an active and viable state. Another advantage is the absence of abnormal physiological conditions as are induced by hypothermia and drugs. The hazards of these extra-corporeal pump oxygenator systems are still very real in their present stage of development. Most successful systems require a great deal of technical supervision and some are very complicated and expensive. In most cases, their use is still restricted to those centers actively engaged in this work.

#### INDUCED CARDIAC ARREST

Melrose (22) has demonstrated the effectiveness of inducing cardiac arrest with a high concentration of potassium injected as a coronary perfusion. Grove (23) at the Cleveland Clinic has clinically applied this technique with a pump oxygenator system. Catheters are inserted into superior and inferior venae cavae and a large artery is cannulated as the outflow circuit. Before the cardiectomy is performed, the inflow tract is occluded and the heart and lungs allowed to empty. The aorta is then occluded and the patient sustained completely by the pump oxygenator system. The heart is brought to standstill by injection of potassium citrate into the aorta at the level of the coronary ostia. The operation is then carried out in a dry and quiet field. In their hands, resuscitation is always attained by simply flushing out the myocardium with fresh oxygenated blood.

#### LEFT TO RIGHT SHUNTS

One of the most perplexing problems encountered at cardiectomy is the evaluation and correction of a septal defect within the heart. Their variations in anatomy and physiological alterations are myriad. No two appear to be exactly the same. The fine judgment of the cardiac surgeon is taxed in the correct evaluation of these anomalies. It is well to keep in mind that an anatomical defect does not necessarily indicate a shunt and the size of the defect does not indicate the volume of shunted blood between the systemic and pulmonary circuits. It is interesting to note that the shunt is in reality a mani-

festation of a progression of anatomical changes in the pulmonary circuits. It is interesting to note that the shunt is in reality a manifestation of a progression of anatomical changes in the pulmonary vascular bed (24).

#### CONGENITAL ANATOMICAL DEFECTS

The successful surgical treatment of patent ductus arteriosus was one of the early milestones in cardiovascular surgery. But after a combined experience of several thousand cases, it remains a difficult problem in both clinical evaluation and management.

Tetralogy of Fallot was one of the earliest congenital defects within the heart corrected by means of a compensating extra-cardiac shunt. Over the years, the subclavian pulmonary artery shunt as developed by Blalock has proved to be extremely satisfactory in relieving the immediate symptoms. Long-term results have been less favorable.

High septal defects are extremely difficult to handle if associated with valvular deformity. The so-called ostium primum defects of the atrium are always associated with a defected mitral valve and usually a defective tricuspid valve. This produces an atrioventricular canal. This condition results from failure of the endocardial cushions that separate the atria from the ventricles to fuse in the fourth to sixth week of life. Both direct suture techniques and the insertion of plastic plugs have been successful in some instances (25).

The true atrial septal defects should be differentiated from the patent foramen ovale. The former is a true anatomical defect in the atrial septum and, if large, are associated with abnormal pressure gradients. Sometimes the entire atrial wall will have a sieve-like appearance. A patent foramen ovale represents the persistence of a fetal aperture and may be asymptomatic. The presence of a foramen ovale always raises the question of other congenital anomalies in which the persistent foramen forms a compensatory shunt. Closure of this shunt may be fatal if the primary anomaly is unrecognized. As in mitral commissurotomy, the correction of atrial septa defects constitutes one of the few intracardiac anoma-

lies than can be adequately corrected with closed techniques.

Isolated pulmonary artery atresia and stenosis are to be differentiated from the infundibular stenosis that is more characteristic of the tetralogy of Fallot (26). The management of this anomaly involves the resection of the stenotic segment and reanastomosis either directly or by means of a graft.

#### COARCTATION OF THE AORTA

Gross added another surgical milestone when he used a homograft to bridge the excised stenotic segment in coarctation of the aorta (27). At first it was feared that the placement of such grafts in children would result in late stenosis as the aorta increased its size. Prolonged follow-up in a large number of cases has shown this fear to be unfounded.

#### CORONARY OCCLUSION

Probably no field of cardiac surgery offers the tremendous potential as does the possible correction or reversal of coronary occlusion changes. Beck (28) has long been interested in this problem and his surgical experience is used as a guidepost in the field. He and others have observed that myocardial revascularization could be promoted by any technique or procedure which produced a pericardial reaction. Others have attempted to bring an increased blood supply to the myocardium by means of visceral grafts. O'Shaughnessy (29) used a omentalgraft. Baronofsky (30) used a segment of bowel with the mucosa removed. Many other techniques have been tried but none to date have withstood the test of controlled experimentation. Almost any procedure that produces an inflammatory reaction in the myocardium will increase its vascularization with the surrounding tissues. The trouble to date has been maintaining this vascularization as the healing mechanism with scar formation progresses.

Recently, Beck (31) has recommended a second procedure that has produced favorable results in his hands. He utilizes the principle of retrograde flow through the coronary vessels to supply arterial blood to the myocardium. A graft is placed between the coronary sinus and the aorta. The atrial end of the sinus is partially occluded.

Vineberg (32) has experimented with implanting major arteries, usually the internal mammary artery into the myocardium. He has shown by means of radio opaque dye studies that the myocardium can be supplied with blood from these transplanted vessels.

Many other approaches have been tried. Endarterectomy of the coronary artery to remove the occlusion has been performed. Experiments with excision of the diseased segment of the artery and replacement with a homograft has also been successfully carried out (33). The results are as yet too preliminary for practical application.

#### Bibliography

1. Brunton, L.: Preliminary Note on the Possibility of Treating Mitral Stenosis by Surgical Methods, *Lancet*: 352 (Feb. 8), 1902.
2. Allen, D. S., and Graham, E. A.: Intracardiac Surgery: A New Method, *J. A. M. A.* 79: 1028-1030, 1922.
3. Souttar, H.: The Surgical Treatment of Mitral Stenosis, *Brit. M. J.* 2: 603, 1925.
4. Bailey, C. F.: The Surgical Treatment of Mitral Stenosis (Mitral Commissurotomy), *Dis. Chest* 15: 377, 1949.
5. Klein, O.: Zur Bestimmung des zirkulatorischen Minutenvolumens beim Menschen nach dem Fickschen Prinzip. *Munchen. med. Wchnschr.*, 77: 1311, 1930.
6. Dos Santos, R., Lamos, A., and Pereira, D. J.: L'Arteriographie des membres de l'artere et ses branches abdominales, *Bull. Soc. Nat. Par.* 55: 587-601, 1929.
7. Robb, G. P. and Steinberg, I.: Practical Methods of Visualizing Chambers of the Heart, Pulmonary Vessels and Great Blood Vessels in Man, *J. Clin. Invest.* 17:507, 1938.
8. Crawford, E. S., Beall, A. C., Moyer, J. H. and DeBakey, M. E.: Complications of Aortography, *Surgl., Gyn., and Obst.*: 104: 129, 1957.
9. Uricchio, J. F. and Likoff, W.: Effect of Mitral Commissurotomy on Co-Existing Aortic-Valve Lesions, *New Eng. J. Med.* 256: 199, 1957.
10. Harken, D. E.: Henry Ford Hospital International Symposium of Cardiovascular Surgery. W. B. Saunders & Co., Philadelphia, Pa. P. 162, 1955.
11. Glenn, F. and Dincen, P.: Recurrent Mitral Stenosis: A Case Report, *Ann. Surg.* 143: 405, 1956.
12. Davila, J. C., Mattson, W. W., O'Neill, T. J. E. and Glover, R. P.: A Method for the Surgical Correction of Mitral Insufficiency, *Surg., Gyn. and Obst.* 98: 407-411, 1954.
13. Bailey, C. P., Bolton, H. E., Jamison, W. J., Nichols, H. T., and Gomez-Almeida, M.: The Surgical Treatment of Mitral Regurgitation. Transactions of the Second Congress of the International Society of Angiology, Lisbon, Portugal, September, 1954.



14. Blalock, A. and Hanlon, C. R.: Surgical Treatment of Complete Transposition of the Aorta and the Pulmonary Artery, *Surg., Gyn. and Obst.* 90: 1, 1950.
15. Crafoord, Clarence: Quoted from Henry Ford Hospital International Symposium on Cardiovascular Surgery. W. B. Saunders and Co., Philadelphia, Pa. P. 140, 1955.
16. Baffles, Thomas G.: A New Method for Surgical Correction for Transposition of the Aorta and Pulmonary Artery, *Surg., Gyn. and Obst.* 102: 227, 1956.
17. Bruwer, A. J.: Posterior - Anterior Roentgenograms in Two Types of Anomalous Pulmonary Venous Connections, *J. Thorac. Surg.* 32: 119, 1956.
18. Mustard, W. T. and Dolan, F. G.: The Surgical Treatment of Total Anomalous Pulmonary Venous Drainage. *Ann. Surg.* 145: 379, 1957.
19. Shumway, N. E. and Lewis, F. J.: Closure of Experimental Aortic Septal Defects Under Direct Vision with Hypothermia. *Surg.* 39: 604, 1956.
20. Hufnagel, C. A., Harvey, W. P., Robil, P. J. and McDermott, T. F.: Surgical Correction of Aortic Insufficiency, *Surg.*, 35: 673, 1954.
21. Blanco, G., Adam, A. and Fernandez, A.: A Direct Experimental Approach to the Aortic Valve. II. Retroperfusion of the Coronary Sinus. *J. Thorac. Surg.*, 32: 171, 1956.
22. Melrose, D. G., Deyer, B., Bentall, N. H., and Baker, J. B. E.: Elective Cardiac Arrest. *Lancet* 2: 21-22, 1955.
23. Effler, D. B., Groves, L. K. and Sones, F. M.: Elective Cardiac Arrest in Open Heart Surgery. *Cleveland Clin. Quart.* 23: 109, 1956.
24. Edwards, J. E.: Structural Changes of the Pulmonary Vascular Bed and their functional Significance in Congenital Cardiac Disease. Twenty-Sixth Ludwig Hektoen Lecture, *Proc. Inst. Med.*, Chicago 18: 134, 1950.
25. Donald, E. E., Kirklin, J. and Grindlay, J. H.: The Use of Polyvinyl Sponge Plugs in the Closure of Large Atrial Septal Defects. *Surg., Gyn. and Obst.* 96: 1, 1953.
26. Lillehi, C. W., Cohen, M., Warden, H. E., Read, R. C., Aust, J. B., DeWall, R. A. and Varco, R. L.: Direct Vision Intracardiac Surgical Correction of the Tetralogy of Fallot, Pentalogy of Fallot, and Pulmonary Atresia Defects, Report of First Ten Cases. *Ann. Surg.* 142: 418-445, 1955.
27. Gross, R. E.: Treatment of Certain Coarctations by Homologous Grafts. A Report of Nineteen Cases. *Ann. Surg.*, 134: 753, 1951.
28. Beck, C. S.: Principles Underlying the Operative Approach to the Treatment of Myocardial Ischemia. *Ann. Surg.* 118: 788, 1943.
29. O'Saughnessy, L.: Experimental Method of Providing Collateral Circulation to the Heart. *Brit. J. Surg.* 23: 665, 1936.
30. Baronfsky, I. D., Sprafka, J. L. and Noble, J. F.: Use of Intestinal loops for Revascularization, *Circulation Res.* 2: 504, 1954.
31. Beck, C. W.: Surgical Approach to Coronary Artery Disease, *Conn. Med. J.* 18: 820, 1954.
32. Vineberg, A., Munro, D. D., Cohen, N. and Butler, W.: Four Years Clinical Experience with Internal Mammery Artery Implantation in the Treatment of Human Coronary Artery Insufficiency including additional experimental Studies. *J. Thorac Surg.* 29: 1, 1955.
33. Murray, G.: Quoted by Bailey, C. P. *Surgery of the Heart.* Lea and Febiger, Philadelphia, Pa. p. 960, 1955.

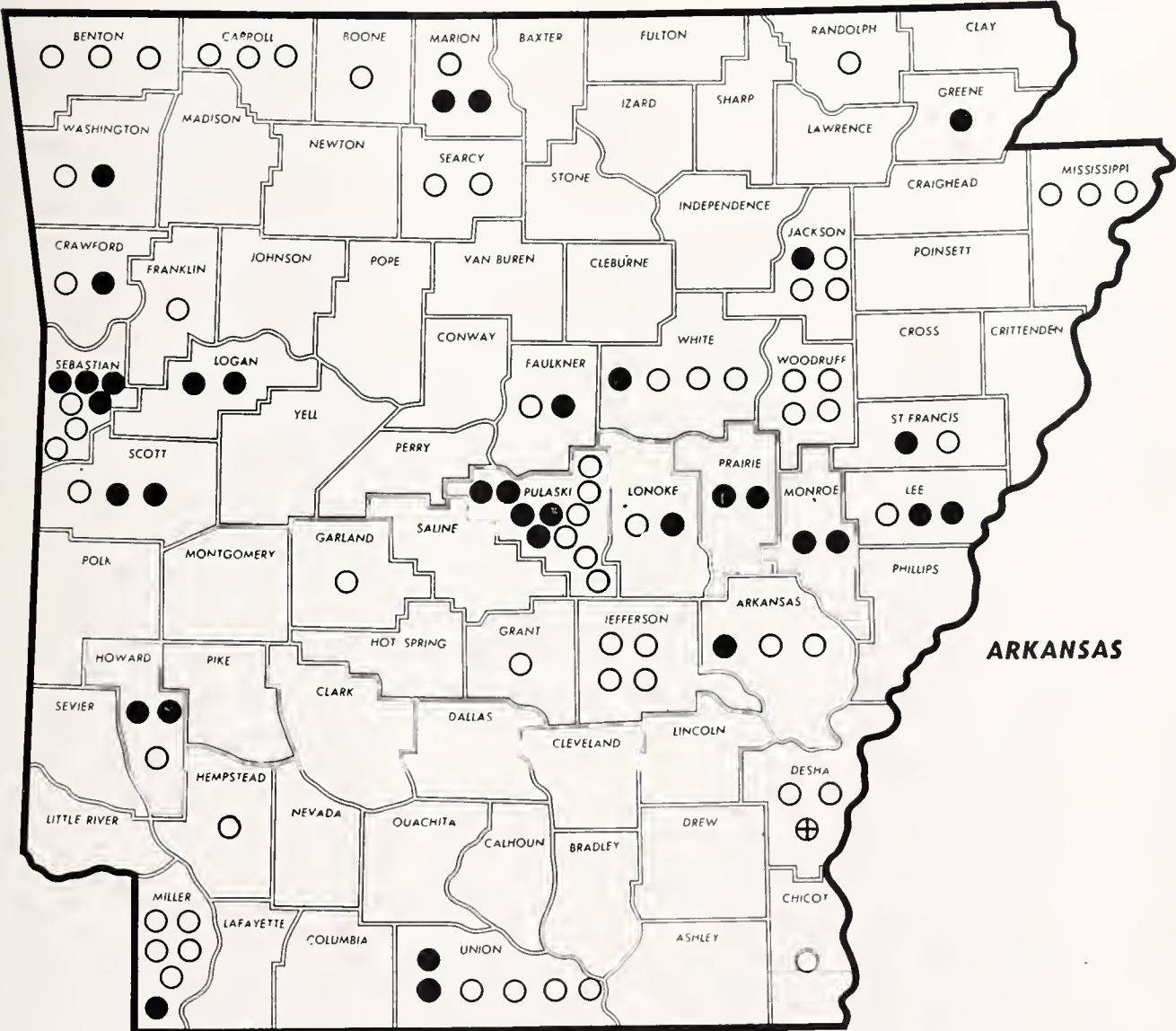
# ARKANSAS PUBLIC HEALTH AT A GLANCE

## POLIOMYELITIS IN ARKANSAS\*

The incidence of symptomatic polio and of virus isolation was spotty in Arkansas during 1956. There were localized outbreaks, such as that in White and Woodruff Counties, where incidence had been

relatively low in the recent past. The total for the last two years has been about half that of previous recent years (See Table 1). This lowering naturally has been attributed to the campaign of immunization against poliomyelitis, and undoubtedly is

# STOOLS SUBMITTED FOR POLIO VIRUS ISOLATION DURING 1956



STATE BOARD OF HEALTH

TOTAL STOOLS SUBMITTED	101
● TYPE I POLIO VIRUS	36
⊕ COXSACKIE VIRUS	1
○ NEGATIVE	64

\*Sponsored by the Arkansas State Board of Health.



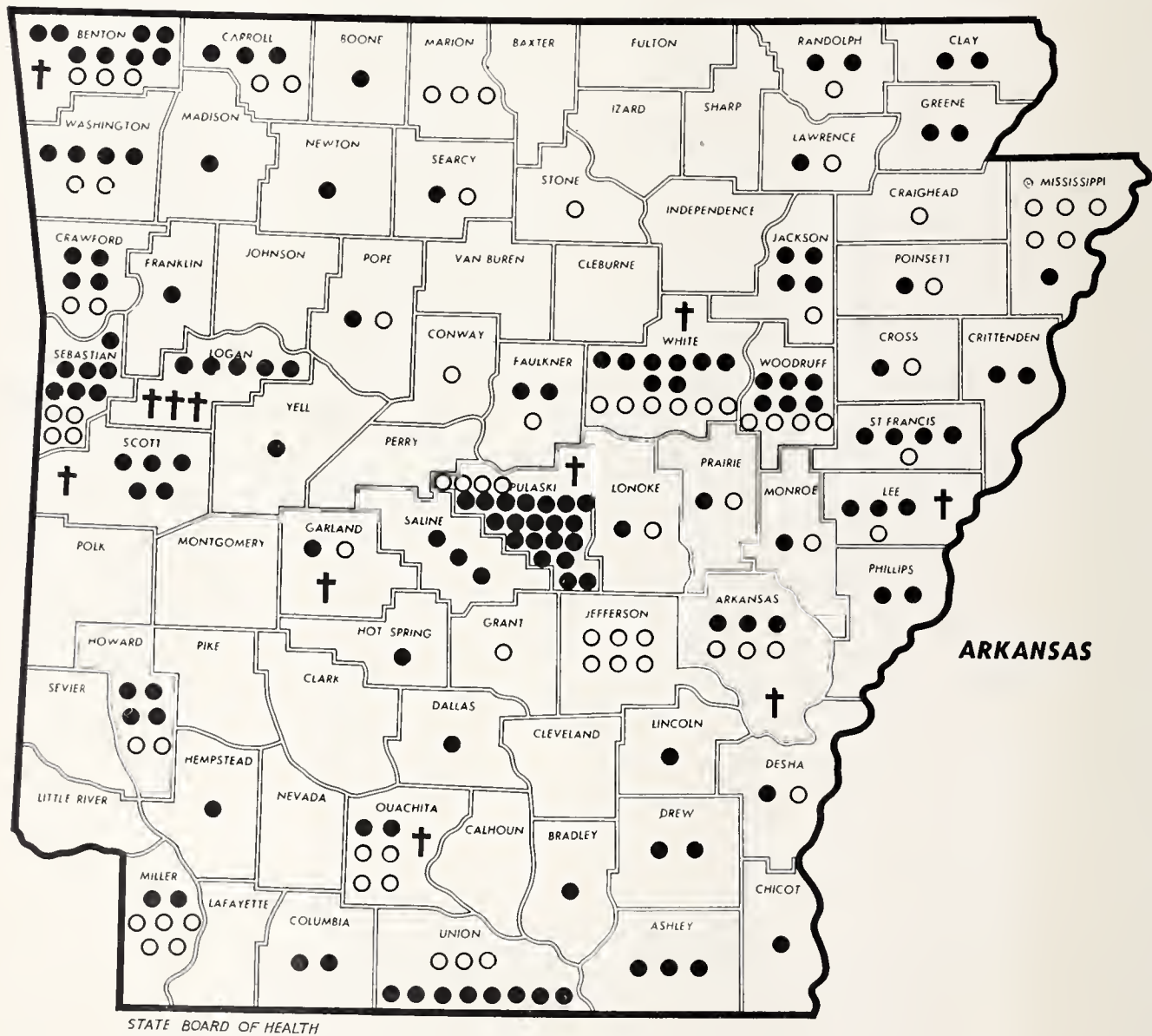
TABLE 1—TOTAL REPORTED CASES OF POLIOMYELITIS

1949	1950	1951	1952	1953	1954	1955	1956
992	337	466	383	322	365	186	222

due in some measure to this activity. From a strictly scientific viewpoint, it is very difficult to be sure of the reason for decline in number of cases in many sit-

uations. The next few years will help to show whether the decline was partly due to natural cyclic variation in incidence that many virus diseases go

CLINICAL CASES OF POLIO  
REPORTED DURING 1956



TOTAL CASES REPORTED	222
† DEATHS	11
• PARALYTIC CASES	146
○ NON-PARALYTIC CASES	76

through. For example the reported incidence of measles for the first half of 1957 was only one-sixth that of the first half of 1956 (1,238 vs 7,912), and that of mumps, only one-fourth, for the same periods (615 vs 2,278). There were, of course, no new public health measures put into action to stop the spread of these diseases. These differences are simply normal cyclic variations.

A situation which has a bearing upon the incidence of poliomyelitis was disclosed by recent studies in Louisiana.\*\* It was found that standard immunization with Salk vaccine did not materially influence the frequency or duration of alimentary infection with poliomyelitis virus, or the amount of virus excreted in

\*\*Gelfand, H. M., Fox, J. P., and LeBlanc, D. R. Observations on natural poliovirus infections in immunized children. *Am. J. Pub. Health* 47:421, April, 1957.

the feces, comparing 118 households before and after immunization. Apparently the Salk vaccine confers an effective resistance against nervous system invasion, but not against alimentary tract infection. The suggestion is made that extended use of the Salk (killed-virus) type of vaccine will probably *not* result in the gradual elimination of polio viruses, in the manner that vaccination with live cowpox virus has eliminated smallpox virus from the population. Paralytic poliomyelitis will decrease, but need for a continuous program of immunization with the present type of polio vaccine will apparently continue indefinitely into the future, until a vaccine is found that will confer immunity against growth of the virus in the alimentary tract, and thereby stop its spread in the community.

## RESOLUTION

WHEREAS, the Miller County Medical Society desires to offer good, prompt treatment to indigent cancer patients as well as to all others and;

WHEREAS, the treatment of cancer patients is properly the function of individual physicians and;

WHEREAS, this treatment proceeds more smoothly if unhampered by government control, politics, or unnecessary administrative procedures and;

WHEREAS, under the direction of the Arkansas Cancer Commission this treatment has proceeded smoothly in the past and;

WHEREAS, the recent action of Governor Orval Faubus of Arkansas in vetoing a part of Act 533 of the 1957 General Assembly and thereby denying \$58,000 in funds to the Arkansas Cancer Commission forces indigent patients to apply to the State Welfare Department for hospitalization and, again, interjects federal control into the practice of medicine.

THEREFORE, *Be It Resolved* that the Medical Society of Miller County is wholly opposed to this action of the governor and;

*Be It Further Resolved* that the Medical Society of Miller County will inform the Arkansas Medical Society, the Arkansas Cancer Commission, and the Tumor Clinics in the State of Arkansas of their position and request that these agencies, through their proper representatives, approach the governor and ask him to return control of funds for hospitalization of indigent cancer patients to the Arkansas Cancer Commission, and;

*Be It Further Resolved* that a copy of this resolution be spread upon the minutes of the Miller County Medical Society, and;

*Be It Further Resolved* that copies of this resolution be transmitted to the Governor of Arkansas, to the President of the Arkansas Medical Society, to the President of Bowie County Medical Society, to the Presidents of all Tumor Clinics in the State of Arkansas, and to the Chairman of the Arkansas Cancer Commission.

Signed: E. L. DAVIS, M. D., *President*  
Miller County Medical Society



### The Pope-Yell County Medical Society Sets A Pattern

W. R. BROOKSHER, CHAIRMAN,\*

Committee on American Medical Education Foundation

At its meeting June 13th, the Pope-Yell County Medical Society voted an annual contribution from its membership of twenty-five dollars per member payable to the American Medical Education Foundation.

This is appreciation in a concrete and substantial manner of the importance of physicians contributing to the support of the medical schools on a voluntary basis which should serve to remind their Arkansas colleagues that the purposes of the Foundation deserve the full support of all physicians.

Each year the operating deficit of our eighty medical schools approximates ten million dollars, a deficit which must be eliminated if the system of American medical education, as we now know it, is to survive. To meet this need the American Medical Association and the Association of Medical Colleges inaugurated in 1950 a program whereby individual members of the medical profession might manifest their willingness to shoulder their share in the support of our schools. Two committees have been created, one of which deals with industry and which hopes to raise eight million dollars a year. The other, dealing with the medical profession, expects to raise the other two million dollars to avoid the deficit. In the years since 1950 steady progress has been made

toward meeting the goal in necessary contributions.

Arkansas's response has been far from noteworthy. In 1956, 25 Arkansas physicians contributed, and their contributions, supplemented in a great way by the Woman's Auxiliary to the Arkansas Medical Society, which contributed \$1,737.09, brought the Arkansas total to the unimpressive amount of \$2,554.09. In return, the University of Arkansas School of Medicine received in grants \$36,840 from the two fund-raising committees. Surely, it should be possible for Arkansas physicians to more nearly equal these grants by their voluntary contributions.

Contributions are income tax deductible and may be ear-marked for the school of your choice.

As physicians, we paid but for a small part of the cost of our medical education. We daily profit from the continuing activities of medical schools in education and research. We truly have a continuing tuition debt.

It is hoped that the commendable action of the Pope-Yell County Medical Society will stimulate similar action by other county medical societies, as well as to urge a more active participation in the fund-raising by individual physicians in Arkansas.

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\*Fort Smith, Arkansas

## Medicine in the News

Our president, Dr. T. D. Brown, has been a very busy man. Here are some of his activities for June and July: July 13, 11 a. m.—On program of Arkansas Medical, Dental and Pharmaceutical Association in Hot Springs, Arkansas; 2:00 p. m.—Arlington Hotel, Program Committee met to prepare tentative program for the Annual Meeting in May, 1958, to be approved by Council of Arkansas Medical Society. June 14, attended 9th Councillor District meeting at Harrison, Arkansas. June 19, guest of Arkansas Pharmaceutical Society Annual meeting in Hot Springs, Arkansas. June 23, Marion Hotel—Council meeting of Arkansas Medical Society. June 27, Program Committee—met in Hot Springs for further preparation on program for May, 1958. July 7, Drs. J. Harry Hayes and T. Duell Brown attended the funeral of Dr. J. E. M. Taylor at Sparkman, Arkansas.

### Excellent Clinic Opportunity Available

The late Dr. J. E. M. Taylor of Sparkman just recently completed a new clinic building in Sparkman. This would be a splendid location for a young, industrious physician who wants to start a full schedule of work immediately. Call, write, or better yet, go and see Mrs. J. E. M. Taylor of Sparkman, Arkansas real soon.

### Memorial Hospital

Conway's new Memorial Hospital, erected and equipped at a cost of approximately \$732,000 opened officially July 7, 1957.

### Dr. Darby to Head House Panel On Chemical Additives

Dr. William J. Darby, head of the department of biochemistry and director of the nutrition department, Vanderbilt School of Medicine, has been tapped to serve as impartial chairman of a two-day panel session on the purely scientific aspects of additives in foods. In making the appointment, Chairman John Bell Williams of the House Interstate health subcommittee set August 6 and 7 for the special hearings. Other members of the panel

will be announced later. Dr. Darby is a member of the AMA Council on Foods and Nutrition and chairman of the food protection committee of the National Academy of Sciences' food and nutrition board.

### Folsom Considers Outside Evaluation Of U. S. Medical Research

Secretary Folsom has discussed the possibility of a plan for appointment of a major study committee to evaluate federal spending in the medical research field. Idea behind the non-governmental inquiry by a group of prominent men in medicine and science would be to find out whether the research is producing results in relation to funds being spent. There has been no overall evaluation of medical research since the rapid growth of federal spending in the last decade.

### Broad Social Security Changes Proposed; Doctors Would Be Covered

More changes in the much-amended social security law have been proposed in a bill (H. R. 8883) introduced July 24 by Rep. Robert W. Kean of New Jersey, a Republican member of the House Ways and Means Committee before which the legislation would be heard. The bill is not an administration measure. Mr. Kean claimed that the amendments could be financed without increasing social security tax rates. His explanation: present full employment at higher wages and increased earnings of the Social Security Trust Fund. (However, another \$600 of income would be taxed at present rate.)

One of eight major points in his bill calls for the compulsory inclusion of physicians under the system, thereby making them eligible for old age and survivors insurance at age 65 or age 50 if totally and permanently disabled.

### Dr. Hess Named by President to Head Selective Service Committee

Dr. Elmer Hess of Erie, Pa., 1955 president of the American Medical Association, has been appointed by President Eisenhower as member and chairman of the National Advisory Committee to Selective Service on the Selection of Physicians, Dentists and Allied Specialists. He succeeds Dr. Howard Rusk of New York City, who has held the post since the commit-



tee's formation in the fall of 1950 when the doctor draft went into effect. The committee advises on the induction of medical and dental officers in the armed services.

### **New Rural Health Director Named**

The Board of Trustees has approved the appointment of Dr. W. Wyan Washburn, Boiling Springs, N. C., to fill out the unexpired term of Dr. George F. Bond on the A. M. A. Council on Rural Health. Dr. Bond's resignation was made necessary because of his decision to return to the Navy to take up a career in submarine medical research.

Dr. Washburn, who is health editor of the *Progressive Farmer*, will take over Dr. Bond's regional territory which includes the states of Maryland, West Virginia, North Carolina, South Carolina, Kentucky, Tennessee and Virginia.

### **Disability Freeze**

The Senate has approved and sent to the White House H. R. 6191 giving another year for disabled persons to apply for retroactive benefits under OASI.

### **AMA Announces Two Changes In Administrative Setup**

**Chicago**—The American Medical Association today announced two important changes in its administrative setup.

The Board of Trustees elevated Dr. George F. Lull of (942 Lake Shore Drive) Chicago, who has been secretary-general manager of the Association for 11 years, to the newly-created position of assistant to the president of the AMA. He will continue serving as secretary, which is an elective office.

At the same time, the Board announced the appointment of Dr. F. J. L. Blasingame of Wharton, Texas, to the position of general manager of the American Medical Association. He will take over his new duties on January 1, 1958.

### **AMA Urges All Physicians To Join U. S. Committee**

The House of Delegates of the American Medical Association, on June 5th, unanimously adopted a resolution urging all members of the AMA to become members of the U. S. Committee of WMA and

asking each State Society to give special aid to the U. S. Committee Chairman in its State.

It is none too early to reserve August 15-20, 1958, and plan to attend the 12th General Assembly of The World Medical Association in Copenhagen, Denmark. Special tours will be planned through our travel department and information will be mailed to members of the Committee with the October Newsletter.

### **House Subcommittee Opens Study of Filter Cigarette Issue**

A House subcommittee is embarked on a long series of investigations of advertising practices that might victimize the public, including some related to health and medicine. First subject considered by the Legal and Monetary Affairs subcommittee of the Committee on Government Operations was the advertising of cigarettes, particularly filter cigarettes.

Chairman John Blatnik (D., Minn.) said the subcommittee does not intend to go into the medical aspects, "but it is necessary to get all information from professional levels, as a backdrop on which to superimpose the problem of claims."

Mr. Blatnik noted that this year Americans will smoke over 400 billion cigarettes, an all-time record, in the face of claims that excessive smoking of cigarettes induces a number of diseases or conditions. He noted the "enormous sums" the tobacco industry spent to promote filter cigarettes, which the industry maintain are far less of a health hazard. The objective of this phase of the hearing is to try to determine if false and misleading advertising was used to counteract the adverse publicity from medical researchers and others.

First witness, on July 18, was E. Cuyler Hammond (D. Sc.) of the American Cancer Society, who traced medical and statistical evidence that he said pointed to cigarette smoking as a definite health hazard. Dr. Hammond went into detail on a survey of 22,000 volunteer members of the American Cancer Society between 1951 and 1955, information that was largely covered by him and Dr. Daniel Horn at the AMA's June meeting. The survey conclusion was that there was an extremely high relationship between excessive cig-

arette smoking and lung cancer, that the relationship was significant in many other forms of cancer, and that heavy cigarette smoking would shorten the life span. Questioned by subcommittee members, Dr. Hammond said the survey did not differentiate between smokers of filter and non-filter cigarettes, because relatively few filter cigarettes were being consumed when the survey started. He added that he did not know how such a survey could contrast the effects of the two types. He also admitted the survey was a statistical and not a medical study.

Clarence Cook Little (D. Sc.), chairman of the scientific advisory board of the Tobacco Industry's Research Committee, disagreed with Dr. Hammond's conclusions. He explained the tobacco industry was sponsoring a wide range of cancer studies, not limited to the effects of tobacco. He did not cite any scientific findings coming out of this research, but he said periodic reports would be made. When questioned, he had no specific scientific information as to the effectiveness of filters in protecting health.

### **PHS Notes 'Increased Evidence' Of Smoking As Cancer Factor**

U. S. Public Health Service has a new position on cigarette smoking and cancer: "There is increasing evidence that excessive cigarette smoking is one of the factors which can cause lung cancer." The previous PHS stand, taken three years ago, was that there was "some evidence" of a statistical relationship, but at that time PHS did not comment on the cause and effect relationship.

Surgeon General Burney said the PHS position was taken following a number of scientific reports on smoking and cancer. These studies, he emphasized, confirm "beyond reasonable doubt" that there is a high degree of statistical association between the heavy and prolonged use of cigarettes and lung cancer and that some laboratory studies also support the cause and effect concept. "Excessive" is defined as two or more packs a day.

### **Voluntary Health Insurance**

The number of people in Arkansas who are covered by voluntary health insurance reached a new high by July 1, the Health

Insurance Council reported today. As of this date the Council estimates that over 780,000 persons were protected by some form of insurance designed to help pay hospital and doctor bills.

This figure, the Council said, is part of the continued growth of health insurance throughout the country, which was revealed last May in its 11th annual survey of the extent of voluntary health insurance coverage for 1956. The number of people covered by some form of health insurance in the nation today is more than 118 million, or over 70 per cent of the U. S. civilian population.

**New York, N. Y., July 20** — The Committee for Economic Development (CED 444 Madison Avenue, New York 22, N. Y.) announced today a competition to find what the best informed opinion of the Free World regards as "the most important economic problem to be faced by the United States in the next 20 years."

Assisted by a grant from The Ford Foundation, the CED invited papers on the question as part of the observance of its 15th anniversary.

Fifty prizes of \$500 will be awarded to authors of papers submitted in competition and judged by CED's Research Advisory Board, a body comprising some of the country's most distinguished social scientists.

### **Witnesses Support Legislation On Chemical Additives**

Witnesses heard thus far in the House health subcommittee hearings on chemical additives favor some federal supervision over chemicals used as food additives but they differ on the degree of government control. Hearings by the Interstate and Foreign Commerce subcommittee opened July 15, with Chairman John Bell Williams presiding. He noted that 10 years had passed since Congress set up the Select Committee to Investigate Use of Chemicals in Foods and Cosmetics.

Dr. William E. Smith, Englewood, N. J., told the committee that he and two other researchers failed to have their research contracts renewed when they developed evidence of carcinogenic agents in certain chemicals. Research was being done for chemical companies.



**Conferees Agree on Health Budget: Research Still Up**

The National Institutes of Health is getting about \$21 million more than the House allowed for the fiscal year starting July 1. This was agreed on after two meetings of Senate and House conferees on the Department of Health, Education, and Welfare budget. The Senate had voted \$32 million more than the House total of \$220 million for all NIH operations in-

cluding lab facilities construction. But when the two sides got together, they were able to pare down Senate figures some \$11 million.

In another section of the budget, higher Senate amounts for two Public Health Service items remained untouched. These were grants to states for general health activities and funds for communicable diseases. The following table lists final disposition of disputed items:

Agency	House Recommends	Senate Recommends	Conference Agreement
Assistance to States .....	\$19,592,000	\$22,592,000	\$22,592,000
Indian Health Activities .....	40,000,000	42,500,000	40,100,000
Nat. Cancer Institute .....	46,902,000	58,543,000	56,402,000
Mental Health Activities .....	35,217,000	39,421,000	39,217,000
Nat. Heart Institute .....	33,436,000	38,784,000	35,936,000
Arthritis & Metabolic Diseases .....	17,885,000	23,548,000	20,385,000
Neurology & Blindness .....	18,887,000	24,058,000	21,387,000
Water Pollution Control .....	50,000,000	45,000,000	45,000,000
Communicable Diseases .....	6,200,000	6,250,000	6,250,000

**AMA Restates Position on Bricker Amendment to Senate Unit**

The American Medical Association's support of the principle of the Bricker Amendment has been reiterated to a Senate Judiciary subcommittee. Secretary and General Manager George F. Lull wrote that the association "vigorously endorses the principle of a constitutional amendment designed to restore to the states and to the Congress those legislative powers which until recent years had been thought to be secured to them by the Constitution."

Dr. Lull also stated: "The American Medical Association is properly concerned over the degree to which the use of treaties has already invalidated state laws relating to the practice of medicine. We are concerned that treaties or executive agreements may, in the future, even more seriously transfer the state regulation of medical practice into the hands of those who are unaware of the requirements or desires of the people of the several states." The subcommittee held a hearing June 26 on S. J. Res. 3, the Bricker proposal. Senators Bricker and Hennings testified.

**Library of Medicine Policy On Lending to be Changed**

A major policy change in the lending activities of the National Library of Medi-

cine goes into effect September 1. On that date, the library will no longer lend materials to individuals "over the counter" for use outside the building. However, it will continue its interlibrary service and photoduplication service in order "to get medical literature to all who need it anywhere." Requests from individuals will be channeled through other libraries, and no requests for loans of original works or photocopies from individuals will be honored. The NLM will decide whether to fill interlibrary loans by sending the original or furnishing microfilms or photo-prints.

**Senate Votes More Funds for Medicare in Civilian Hospitals**

The Senate has voted to restore \$1.5 million for the armed forces medicare program. The money, contained in the Defense Department appropriation bill, includes the fund for care of dependents in civilian facilities. The Senate acted July 2 on recommendation of its Appropriation Committee. Both the committee and the Senate ignored the suggestion of the House Appropriations Committee that Defense regulations be changed to favor more extensive use of military facilities over civilian hospitals for dependents. The American Medical Association

had claimed that the Navy had supplied the House with misleading information on comparative costs in military and civilian hospitals, which prompted the House Committee action.

### **VA Formally Announces Policy Change on Compensation Cases**

Following up its May 29 order to Veterans Administration hospitals, the VA on June 26 formally announced to the public that non-service-connected cases covered by workmen's compensation or similar accident insurance will be asked to move from VA hospitals when their conditions warrant. But no veteran will be transferred or discharged until his right to necessary treatment elsewhere at no expense to himself has been clearly established, VA said.

### **Public Health Education Aid**

Senator Humphrey (D., Minn.) has sponsored a bill, S. 2304 providing a 5-year program of grants and scholarships for postgraduate study in schools of public health. Authorized would be \$1 million a year in outright subsidies to maintain and increase enrollment and an equal amount for construction and equipment, with the federal share not exceeding 50 per cent. In addition, \$1.5 million is provided for scholarships over a 6-year period.

### **AMA Issues New Guides On Voluntary Agencies**

A new "Guides to Relationships Between Medical Societies and Voluntary Health Agencies" has been published by the American Medical Association. Prepared by the Committee on Relationships Between Medicine and Allied Health Agencies, the booklet points up the nature of voluntary health agencies, the questions that need to be answered in evaluating such agencies, the medical society's obligations to voluntary agencies, and the voluntary agency's obligations to the medical society.

### **Eisenhower Signs Revised Doctor Draft Bill**

The revised doctor draft bill has become Public Law 85-62; it was signed by

President Eisenhower June 27, four days before the expiration of the old doctor draft law. Under the latter, some 10,000 physicians were called up for two or more years of service, starting back at the time of the Korean war. The new law provides for the selective call-up of physicians and dentists to age 35 if they were deferred from the regular draft at any time after June, 1951, in order to complete their professional training. The law is effective for two years, expiring at the same time as the regular draft. Defense Department estimates that the 2,200 physicians required by the services this fiscal year will come from volunteers.

### **Pick Six Most Popular Films at AMA Meeting**

Both the domestic and international motion picture programs at the recent AMA meeting in New York were well attended. According to Ralph Creer, director of motion pictures and medical television, the six most popular films shown on the domestic program were:

Grand Rounds: Diagnostic and Therapeutic Advances in Liver Disease, Upjohn Company; Time and Two Women, J. V. Meigs, American Cancer Society; Stress and Adaptation Syndrome, Hans Selye; Technique of Proctoscopy, Raymond Jackman; Peripheral Vascular Disease, Gerald Pratt; and Resection of Abdominal Aortic Aneurysm, Michael DeBakey.

### **House Clarifies Role of Health Advisory Committees**

House debate on a bill for stricter federal control over some 1,800 advisory committees to government agencies has clarified the function of the medical advisory groups to the Public Health Service. Advisory committees to the National Institutes of Health and the Hill-Burton hospital program, for instance, would be exempt from the bill's provisions, the sponsors told the House. The bill (H. R. 7390) then passed by voice vote.

Until the debate there was some question whether statutory medical committees would have to comply along with many other advisory groups in the following: (1) form their agenda by full-time salaried government officials, (2) chairmanship by full-time federal employees,



(3) keeping full and complete minutes of meetings, and (4) limiting the use of committees to purely advisory functions.

Discussion brought out that under law the Surgeon General of the PHS can't make a NIH grant which has not been recommended by the respective advisory council. Accordingly, such councils perform administrative or operative functions and would not be affected, the House agreed. The clarification came after the American Medical Association called the situation to the attention of House members.

#### **Small Business Loans to Health Facilities Near \$3 Million Mark**

Small Business Administration, reporting on its loan activities in the health field, estimated this week that it has made 34 loans totalling \$2,976,550 for construction, expansion or equipping health facilities. Loans were made to proprietary hospitals, nursing homes, medical and dental laboratories and one combined medical-surgical-dental clinic. Money is loaned either directly to the borrower or in participation with a bank. The total covers the period between last October and July 1 of this year.

Several applications are pending in regional offices for loans direct to physicians. They and other professional people are now eligible for SBA loans. The prospective borrowers seek funds for construction, expansion or improvement of offices, and for purchase of office equipment.

SBA decided last fall to enter the medical field and to offer loans to proprietary facilities, including group practice clinics. The American Medical Association then suggested that if loans were to be made in this field, they also should be available to doctors in solo practice. SBA went ahead with loans to hospitals and nursing homes, but, not certain it had enough funds to offer loans to professional persons, SBA, delayed until recently on individual loans. Details may be obtained at regional offices in Boston, New York, Philadelphia, Richmond, Atlanta, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Denver, Los Angeles, San Francisco and Seattle.

#### **Career Improvement for Military Nurses Strongly Indorsed**

The House-passed bill (H. R. 2460) to make careers in nursing, dietetics and physical and occupational therapy more attractive has received strong support from the military. The top medical staffs in the Defense Department urged speedy action by the Senate, after citing losses of personnel to civilian careers.

#### **The Month in Washington**

**Washington, D. C.**—The economy drive to the contrary notwithstanding, health spending by the Department of Health, Education, and Welfare for the fiscal year that began this July already is assured of surpassing last year's record by some \$33 million. This assumes, of course, that no further requests will be made by HEW for supplemental funds, a practice common in government for many years.

Research programs were the most favored by legislators, many of whom spoke out against federal spending by other agencies. But when the health budget came up for debate, the economy oratory subsided.

In only one instance was a health program cut back. And to the surprise of many, it occurred in the Senate which traditionally restores budget cuts originating in the House. A sum of \$45 million was voted, instead of the House-approved \$50 million, for grants to states for sewage treatment works construction. But then the Senate wrote in language permitting states to get their maximum allotments a full year after the fiscal year ends.

The Hill-Burton hospital construction program received \$3.8 million less than last year but only because the administration asked for \$121.2 million instead of the \$125 million appropriated last year.

The National Cancer Institute received the largest dollar increase of any health item in the budget. The increment was \$8 million over last year. The administration had asked for \$48.4 million, the House voted \$46.9 million, and the Senate raised this to \$58.5. It was finally compromised at \$56.4 million.

Congress obviously agreed with the views expressed by the Senate Appropriations

tions Committee: "... the committee is fully aware that it is providing funds for cancer research, the outcome of which is unknown. On the judgment of those who are scientifically most competent, the committee is fully willing to risk the investment on the ground that the chance of a big payoff is a reasonable one. Such risks are inherent in research."

The Institute of Arthritis and Metabolic Diseases fared well, too, getting a total of \$20,385,000 compared with last year's \$17,885,000. And the Senate Committee charged the institute with taking leadership in research on effects of radiation on the human organism.

The Mental Health Institute's spending has been going steadily upward, and this year it was given another boost with a final appropriation of \$39,217,000, an increase of about \$4 million. Other research totals for the current year: National Heart Institute, \$35,936,000; Neurology and Blindness Institute, \$21,387,000; Allergy and Infectious Disease Institute, \$17,400,000.

On only one score did the research advocates lose out. The House view prevailed in conference on the setting of a 15 per cent ceiling on additional overhead costs allowed schools and other institutions getting federal grants. This question which drew considerable attention in hearings is likely to be reopened. Congress wants a General Accounting Office study by the end of this year.

## *Announcements*

### 1958 Annual Session

Dr. C. Randolph Ellis, the Program Chairman for the 1958 annual session of the Arkansas Medical Society has already arranged many parts of the program. The program is going to be excellent and will cover a wide variety of topics at the general sessions. Begin to make your plans now for this fine meeting. The meetings will be entirely general sessions except for one afternoon which is set

aside for specialty groups. It is requested by the Program Committee that the limited specialty groups have their meetings at that time.

### Blackford Memorial Lectureship

The Grayson County Medical Society has announced the second Blackford Memorial Lectureship will be held November 5, 1957 in Denison, Texas.

Guest speakers: Dr. Conrad G. Collins, Professor of Obstetrics & Gynecology, New Orleans, Louisiana; Dr. J. R. Maxfield, Jr., Radiologist, Dallas, Texas; Dr. C. M. Pomerat, anatomist, Galveston, Texas; Dr. Edgar J. Poth, Professor of Surgery, Galveston, Texas.

### Seminar On Gynecology

The University of Texas Postgraduate School of Medicine is presenting on October 27, 28, and 29, 1957 a three-day Seminar on Current Trends in Gynecology. This seminar will stress latest developments in this field with particular reference to patient management. A wide range of gynecologic subjects will be presented using lectures, panel discussions and surgical demonstrations in the operating rooms of The University of Texas M. D. Anderson Hospital and Tumor Institute. Guest lecturers will include Dr. Hans L. Kottmeier of the Radiumhemmet, Stockholm, Sweden.

For queries concerning this course, communicate with the Dean of The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

### Nutrition in Pregnancy Symposium

Nutrition plays an important role in all phases of the reproductive process. Nutrition in Pregnancy will be the subject of the 1957 symposium of the Council on Foods and Nutrition of the American Medical Association to be held October 11 at the University of Missouri Medical Center, Columbia, Missouri.



# Obituary

**Dr. John Edwin Marvin Taylor**, age 72, a pioneer Dallas County physician and native, died Wednesday, July 3, in a Little Rock hospital. Dr. Taylor had practiced medicine in Sparkman for over 50 years. He was born in Jacinto on April 28, 1885. After finishing the Jacinto school, he attended Clary Training School in Fordyce, graduated from Henderson-Brown College in Arkadelphia and later from the Arkansas Medical College in Little Rock in 1912. Dr. Taylor served as a member of the Board of Stewards of the Sparkman Methodist Church for 38 years, a member of the Sparkman school board for 17 years and served on the Sparkman City Council for 25 years. He was recognized by the Arkansas Public Health Service for his outstanding contribution to the people of his community. On August 23, 1956, he was honored by the people of Sparkman when they proclaimed "Dr. Taylor Day." Dr. Taylor is survived by his widow; two daughters, Mrs. Fred Stolz of Mannheim, Germany, and Mrs. Stanley Gilbert of Ft. Leavenworth, Kansas; five brothers, four sisters and one grandson.

**Dr. J. P. Hiller**, 82, died Sunday, July 7, 1957, following a long illness. He was the son of the late Isiah and Mary Brandon Hiller, and was born near Carbondale, Ill., on September 6, 1875. After completing his medical schooling in St. Louis in 1903 he came to Clay County, Ark., locating at Pollard. There he practiced as long as his health permitted. Dr. Hiller is survived by his wife; two sons, Fred Hiller of Kenosha, Wis., and Francis Hiller of Fort Smith; and one daughter, Mrs. Alma Klinicke, Chicago, Ill.

**Dr. Wylie E. Turner, Jr.**, age 43, well known Piggott physician, died Tuesday, July 9, 1957. Dr. Turner was born in Mississippi County, Ark. He completed his medical training at the University of Tennessee Medical School and served his internship in St. Joseph's Hospital in Memphis. He and his father, who died some years ago, opened the Turner Clinic

in Piggott in 1940. Later they worked together on the staff of the Piggott Hospital. Dr. Turner was a member of the American Medical Association, Arkansas Medical Society, Clay-Greene Medical Society, and a "Fellow" of the International Academy of Proctology. Surviving are his wife; four daughters, Alice, Karen, Sandra and Billie Sue; and his mother, Mrs. W. E. Turner, Sr., all of Piggott.

## PERSONALS AND NEWS ITEMS

On July 27th, the Greene-Clay County Medical Society and the Greene-Clay County Auxiliary, represented by **Dr. Robert J. Haley**, **Mrs. Haley**, and **Dr. and Mrs. A. E. Andrews**, presented a plaque of appreciation for the county, state, and American Medical Associations to radio station KDRS in Paragould. Station KDRS has cooperated with the medical profession in broadcasting at least ten thirteen-program health series in the past five years. The presentation was made in a ten-minute broadcast presentation ceremony.

**Dr. Russell W. Cobb** of Keo has joined **Dr. Raymond E. Peebles** as Malvern's newest medical doctor. Dr. Cobb recently finished his Internship at St. Vincent Infirmary in Little Rock.

**Dr. and Mrs. J. J. Monfort** of Batesville traveled to Rochester, Minnesota, in June, where Dr. Monfort did postgraduate work at the Mayo Clinic.

It has been announced that **Dr. David Dawson** has returned to Newport to practice after serving as a Captain in the U. S. Army Medical Corps.

Open House was held recently by **Dr. Fred C. Inman** at his newly completed clinic in Searcy.

Moving to Altheimer to continue his profession as a physician and surgeon is **Dr. James B. Searcy**. Dr. Searcy has been affiliated with the Hazen Clinic the past year.

## FEATURES

**Dr. W. F. Barrier** of Malvern is now moved into his new clinic. Open house was recently held.

Contribution to American Medical Education Foundation was received from **Dr. Henry W. Thomas** of Dermott, Arkansas, in the amount of \$50.00 for the period of June, 1957.

**Drs. L. F. Barrier** and **Phillip T. Culen** of Little Rock have announced the association of **Dr. Henry D. Johnson** in the practice of internal medicine.

The Drew County Medical Assistants Association was host to local physicians and their families and special guests from Dermott at a picnic the 10th of July at Dura Craft Lake, Monticello. After boat riding and a delicious supper, the film "Mongagna" was shown.

The American Board of Obstetrics and Gynecology has certified **Dr. Alex Tharp Gillespie** of Little Rock.

The Texarkana Rotary Club has as its new president **Dr. William B. Harrell**. Dr. Harrell was installed at a luncheon meeting during the month of June.

**Dr. Hans Schlumberger** has assumed his new post as head of the Department of Pathology, University of Arkansas School of Medicine. He was formerly professor of pathology at Ohio State.

More than two thousand friends and relatives of **Dr. Joe B. Wharton, Sr.**, honored the doctor at the Rufus Garrett Ho-

tel, El Dorado, on the occasion of his 57th year of service to the community and his 80th birthday. The idea for the special recognition originated with the Union County Medical Society who presented Dr. Wharton with a plaque and a sterling silver water pitcher, tumbler and tray set. Many other gifts, telegrams and congratulatory messages were received.

**Drs. Frank M. Burton** and **W. Martin Eisele**, Hot Springs, have announced the association of **Dr. James H. French** with their clinic.

**Dr. Eugene H. Crawley** of Little Rock was recently notified by the Executive Board of the American Academy of Pediatrics that he had been appointed to the Committee on Fetus and Newborn. This committee formulates and establishes the standards for the care of infants in hospital nurseries and aids in the training of nursery personnel. Dr. Crawley has been active in training programs for nursery personnel for the past three years.

Now practicing at the Walker Clinic in Mammoth Spring as an associate of **Dr. A. T. Walker** is **Dr. Jim Lytle**. Dr. Lytle recently finished his Internship at the Arkansas Baptist Hospital in Little Rock.

Guest speaker at a luncheon meeting of the Smackover Lions Club recently was **Dr. R. B. Robins** of Camden. He discussed the cost of drugs, medical and hospital care and the vast research programs conducted by the pharmaceutical industry.



# Council Minutes

June 23rd, 1957

Hotel Marion,  
Little Rock Arkansas

The Council of the Arkansas Medical Society met at 12:00 noon on June 23rd at the Marion Hotel in Little Rock, Present were: E. Shuffield, Kennedy, Rodgers, Richardson, Whittaker, Edwards, Olson, Dalton, Fay Jones, Snodgrass, Fowler, Verser, J. Shuffield, W. R. Brooksher, Dickinson, McDaniel, Kahn, T. D. Brown, Kolb, Hundley, Lawrason, Simmons, H. T. Smith, Thomas, Randolph Ellis, Lewis Hyatt, John Watkins, G. D. Murphy, Jr., Henry, Millwee, Mr. Gordon Rather, Mr. Warren, and Mr. Schaefer.

The Council transacted business as follows:

1. Chairman Kolb introduced Mr. Gordon Rather of the insurance firm of Rather and Beyer, whose professional overhead insurance policy was officially endorsed by the 1957 House of Delegates. Mr. Rather requested that the Council authorize the officers to sign letters of introduction and endorsement of his policy on a facsimile of medical society stationery. Upon the motion of Edwards and Olson, the Council authorized the signatures as requested.

II. Upon the motion of Dalton and Hundley, the Council approved Executive Committee action in extending the Veterans Administration contract for sixty days to allow time for renegotiation. By the same motion, the Executive Committee of the Council was designated as a team to negotiate a new contract with the Veterans Administration.

III. Mr. Schaefer read a communication from Mr. Mills advising that he would be unable to get any action on the Jenkins-Keogh Bill at this time. It was pointed out to the Council that this measure for income tax deferred retirement for doctors is gaining strength and that they should write their congressmen urging early action.

IV. Mr. Schaefer read a letter from Insurance Commissioner Harvey Combs in regard to the Society's request that the Physicians National Life Insurance Company's license in Arkansas be re-

voked. Mr. Combs stated that the company had been warned and he hoped that this would take care of the matter.

V. Kahn discussed the policy of the editorial committee in regard to cost of illustrations for scientific articles in the Journal, stating that the committee had voted to have the Journal underwrite the cost of such illustrations in the case of articles written by the medical staff at the Medical Center; the number of and responsibility for payment of illustrations for each article is to be decided individually.

VI. Randolph Ellis reported on the proposed outline for the program for the Annual Session of 1958. The Council voted to approve whatever plans the Committee made in the following instances: A. Not to have a general session on Tuesday afternoon and to request all specialty sections to confine their programs to this period. B. Monday night party or meeting — it was generally agreed that the host county society should not be allowed to underwrite the entertainment for this night and the question of making it a Dutch Treat party or a general meeting without entertainment was left up to the Committee. C. The inauguration of the president at the Tuesday night banquet and dance. D. The awarding of an attendance prize to the Councilor District having the largest attendance at the Wednesday morning General Session.

VII. The Council voted that the exhibitors should be limited in the case of giving away food and drink to those products which they sell.

VIII. After discussion by John Watkins and upon the motion of E. Shuffield and Dalton, the Council voted approval of the Glaucoma Program proposed by the Ophthalmological Section of the Arkansas Medical Society.

IX. Joe Verser discussed the widespread cheating on the basic science examinations. Upon the motion of Thomas and E. Shuffield, the Executive Committee was appointed to meet with the State Board of Medical Examiners to discuss possible plans of action.

X. J. W. Kennedy, as chairman of the Committee on Medical Education, read a resolution drawn up by the Pulaski Coun-

ty Liaison Committee with the Medical Center and the State Committee on Medical Education. The resolution offered the Society's assistance to the Legislative Council in any investigation of the Medical Center which it saw fit to make. Upon the motion of Edwards and Thomas, the Council adopted the resolution.

XI. Mr. Schaefer read a letter from the Executive Director of the Medicare Program stating that the request of the Society to qualify all licensed hospitals in Arkansas for payments under the Medicare Program could not be granted. Upon the motion of Thomas and Hundley, the Council directed that the Executive Secretary write the Executive Director of Medicare that his reply was unacceptable and that the hospitals would be a subject to be discussed at the time of the renegotiation of the contract in January of 1958.

XII. Upon the motion of Verser and Thomas, the Council approved the extension of the present Medicare contract to terminate March 31, 1958.

XIII. Mr. Schaefer discussed the desirability of sending his secretary, Miss Richmond, to national meetings of the AMA and allied organizations. He further discussed expenses by Miss Richmond in her day-to-day supervisory duties and miscellaneous local trips. Upon the motion of Thomas and Edwards, it was voted to authorize one trip a year for Miss Richmond to AMA meetings or those of allied organizations, subject to a \$300.00 maximum and the approval of the Executive Secretary. In addition, an expense allowance of \$25.00 per month was voted.

XIV. Richardson pointed out to the Council that although the duties and responsibilities of the Executive Secretary had been greatly increased by the Medicare Program, an adjustment had not been made in his salary and that the Government was reimbursing the Society for a large percentage of his pay and suggested that the Council vote an adequate increase. Upon the motion of Hundley and Thomas, Richardson's suggestion was referred to the Budget Committee for action.

XV. Thomas then read a letter he had written to an adjustment company in

which he refused to comply with their request that he give the insurance company prior notice before referring a patient to a specialist.

XVI. Chairman Kolb reviewed the possibility of electing R. B. Robins to an anticipated vacancy on the AMA Board of Trustees. Upon the motion of Dalton and Thomas, the Council voted to present R. B. Robins as a candidate and voted that money for a campaign be raised by individual subscriptions among members of the Society. Chairman Kolb then appointed Perry Dalton as Chairman of the Committee to raise money and requested Garland Murphy, Jr., to exercise his influence through the American Legion.

XVII. Chairman Kolb then discussed the American Medical Education Foundation, stating that it was his opinion that Arkansas should contribute more to this fund and discussed the possibility of levying an assessment on the members or voting money from the Medical Society treasury.

The Council adjourned at 3:30 p.m.

James M. Kolb, M.D.  
/s/ James M. Kolb, M.D.  
Chairman

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## TUBERCULOSIS ABSTRACTS\*

Sponsored by  
The Arkansas Tuberculosis Association

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### Minimal Pulmonary Tuberculosis in Military Personnel: World War II

By James J. Waring, M.D.,  
and William H. Roper, M.D.,  
The American Review of Tuberculosis  
and Pulmonary Diseases, January, 1957.

The mobilization and maintenance of the Army of the United States in World War II, with initial physical examination of all accepted military personnel and subsequent medical control and hospitalization as necessary, provided an exceptionally valuable opportunity for studying the fate of tuberculous lesions. The medical provisions of the mobilization regulations, permitting acceptance of men with small densely scarred lesions, and the occurrence of active tuberculosis in the military forces as a result of failure of detection on entry



or new acquisition of the disease during service, made it possible to study in a known military environment, the progress of tuberculous lesions that became manifest under conditions ranging from sedentary occupations to the extreme physical strains of military combat.

The study here described was set up to take advantage of this unusual opportunity. Its findings are of interest and value at the present time for comparison with currently accumulating data on the course of pulmonary tuberculosis of similar character as affected by methods of treatment (specific chemotherapy) not available at the time of this study.

A research organization was established that would permit observation over a period of years of a group of a thousand men and women with pulmonary tuberculosis in the minimal stage at the time of its first detection, or with reliable records furnishing objective evidence of its presence in that stage at some previous period, e.g., in an army induction station examination in which the lesion was overlooked. A group of approximately this size was selected and a system of follow-up was set up for a period of three years or more. Because of the nature of the material, the observations were oriented on a military basis. In essence, however, they apply equally well to tuberculosis in a nonmilitary environment.

This study of minimal pulmonary tuberculosis as it occurred in the U.S. Army during World War II was begun in January, 1944; the last patient was included in the project in June, 1946, preceding the era of chemotherapy for tuberculosis. Observations were continued until September, 1949. The primary purpose of this study was to ascertain what happened under war conditions to military personnel developing minimal pulmonary tuberculosis while in service. It was also hoped to determine the reliability or unreliability of certain criteria for acceptance or rejection of recruits for military service, such as roentgenographic abnormalities and previous history of active tuberculosis.

After excluding the 35 persons who died during the study, the average follow-up period was 52 months for each person. Chest roentgenograms taken on entry into the army were reviewed for 918 of the

967 military personnel under observation. During the follow-up period, every person in the group was examined three to six times annually for three or more years, and more than 28 films per person were reviewed.

The method of selecting patients for study is believed to have yielded a valid random sample of minimal pulmonary tuberculosis in the army. For example, the median age of all patients included in this study was 28.2 years, compared with 28.8 years for the patients with minimal disease in the army as a whole during the same period.

Of 625 persons with active minimal tuberculosis at the time of the first clinical classification by the Army Research Section, the disease improved in one-third and worsened in two-thirds during the period of observation. Of 342 persons with apparently inactive tuberculosis at first study, 78 per cent remained well, 9 per cent had relapses and later improved, while 13 per cent had relapses with subsequent worsening of their disease. The proportion of active cases in which improvement occurred was highest in the group 25 to 34 years of age.

Eighty-two persons developed active pulmonary tuberculosis within twelve months and 31 of them within six months after entry into military service. Despite "acceptable" roentgenograms, the majority of those with histories of active tuberculosis before admission to the army in World War II had relapses during military service. Of 94 persons with histories of pre-military active tuberculosis, 68 had relapses during service or after discharge. The probability of relapse was greatest in those with histories of pleural effusion, in those with previous extrathoracic tuberculosis, and in those who had less than six months of rest treatment. On the other hand, 30 of the 112 persons with histories of active tuberculosis in the pre-military period remained well while in service and did not experience a relapse subsequently in the period of observation. Unless adequately treated before return to duty, the hazard of relapse during military service after apparent recovery from active tuberculosis is great. The figures involved are admittedly small. These observations

## FEATURES

were made before chemotherapy became available.

Persons with calcific elements in the parenchymal lesions shown on entry roentgenograms did better in every way than would be expected on the basis of chance alone. In the absence of pre-military skin tests, the implications of this observation are uncertain. In the estimation of activity and potential reactivation, the number, distribution, size, and character of intrathoracic lesions are not as helpful as roentgenographic evidences of stability or instability of the lesions. The value of a negative tuberculin test has been emphasized. Abnormal physical signs and symptoms were not very helpful in diagnosis. In 391 (63 per cent) of the 625 persons with active tuberculosis at first examination, initial recognition of active pulmonary tuberculosis with no suspicious symptoms was due to routine roentgenograms of the chest.

Among the active cases the duration of overseas service bore little relation to "breakdown" with active disease or to the subsequent course of disease. Persons engaged in combat fared the worst, while those assigned to light or moderate work outside without combat duty fared the best.

Assignment of "poor risks" to limited duty within continental United States seemed to afford a measure of protection. Persons with active tuberculosis on limited duty did no better, however, than those on general duty. These findings substantiate the general medical opinion that heavier physical exertion increases the likelihood of "breakdown" with tuberculosis and also increases the likelihood of worsening in active disease.

The type of onset, with or without symptoms, did not bear a significant relationship to the course of disease; one-half of those presenting symptoms proved to have inactive tuberculosis. Persons with persistent rales were more apt to have recurrence of activity than those without rales. Single erythrocyte sedimentation rates did not prove helpful. "Active" cases with sputum persistently negative for tubercle bacilli did better than "active" cases with sputum positive for tubercle bacilli.

Patients with longer periods of hospitalization did much better than those treated for less than six months. Approximately 96 per cent of all observed relapses occurred within the first three years after the end of treatment for the military episode of active disease. Relapses included practically all forms of intra- and extrathoracic tuberculosis.

At the end of the follow-up period in September, 1949, of 625 persons with active minimal tuberculosis at first observation, 370 were well, 228 had active disease, 16 were dead of tuberculosis, and 11 had died of other causes. Of 342 with inactive minimal tuberculosis, 262 were well, 72 had active disease, 4 were dead of tuberculosis and 4 had died of other causes. Of the 342 rated inactive at first observation, 75 had had relapses and had active disease.

In brief, of those diagnosed as having active tuberculosis at the time of the first clinical examination by the Army Research Section, 59 per cent were alive and well at the end of the period of observation, compared with 77 per cent of those diagnosed as having apparently inactive disease.



## BOOK REVIEWS

**Surgery in World War II; Orthopedic Surgery, European Theatre of Operations:** John Boyd Coates, Jr., M.D., Editor-in-chief; Mather Cleveland, Editor for Orthopedic Surgery; Pp. 397; Illustrated, 1956; Superintendent, Public Documents, U. S. Government Printing Office, Washington, D. C.; \$4.00.

It is remarkable how much scientific information and technical teaching can be obtained from these volumes on surgery in World War II. Diagnostic maneuvers, hints on treatment, results, and many case reports, make the reading of this number valuable and instructive. If valuable lessons were learned from World War I on the handling of mass casualties, then there is so much more to be obtained from the study of these reports on World War II from the office of the Surgeon General, U. S. Army. The one on Orthopedic Surgery is no exception. It may be regarded as a text on Orthopedic Surgery, excepting only, the surgical technique. Unlike some military manuals, the logistics of handling larger numbers, their supply rations, equipment, make interesting medical reading. Fount Richardson, M. D.

**A Textbook of Histology.** Alexander A. Maximow and William Bloom. W. B. Saunders Co. Philadelphia and London. 1957. Pp. 628.

This excellent textbook of histology is now in its seventh edition. It has been revised by Dr. William Bloom. The illustrations and sketches are very superior. The references at the end of the chapters have been brought up to date and reflect the changes in the various chapters. The chapter on the liver is not entirely in accord with some of the most recent findings. In general, this book carries on the same fine level of performance of

the other edition. It is heartily recommended as a textbook to medical students. A.K.J.

**Dermatology:** Donald M. Pillsbury, M. A., D. Sc. (Hon.), M.D., Walter B. Shelley, M.D., Ph.D., Albert M. Kligman, M.D., Ph.D.; Illustrated, 1956, Pp. 1331, \$20.00; W. B. Saunders Company, Philadelphia.

The close association of the three authors of this text in one of our finest dermatological clinics, has enabled them to present an unusually complete work.

Lamenting that the average medical school sends out its graduate with only a smattering of dermatology, the book begins with a comprehensive study of the physiology and anatomy of the normal skin, and proceeds from this firm foundation to move into its pathology and therapeutics. This makes the text long but it also makes it all-inclusive. The detail to which the authors give themselves, makes it a storehouse for the student and for the practitioner. The types of therapy are succinctly evaluated. All cutaneous lesions are discussed fully, as well as diseases of the tissues auxiliary to the skin, their blood and nerve supply.

Considerable discussion of the nervous reactions of the skin is presented. (e. g. the mechanism of sweating, blushing, etc.) The illustrations are choice and profuse. The authors have allowed considerable excellent discussion to appear in the descriptive material. This has added to its length but it has also added to its richness, quality, and readability. The style is therefore not stereotyped but is lively and engrossing. The studious reader of this text can readily admire both the depth of discussion and the candid admission of the areas where there is much still to be learned. Our authors point out the weaknesses of our knowledge as well as the material which is well recorded. They have produced a book complete in every detail.

The man who knows this book knows dermatology. Fount Richardson, M. D.

# The JOURNAL

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## Mammary Meditations—1957

WILLIAM G. COOPER, JR., M. D.\*

For 10 or 15 years, the subject of carcinoma of the breast slumbered fitfully. Almost everyone realized a radical mastectomy cured an additional 10 to 20 per cent of the early cases over the salvage obtained by a simple mastectomy. It had become obvious that x-ray therapy gave palliation to many otherwise hopeless individuals. The value of hormonal therapy in these patients was debated without end. No exact proof of these facts was ever adduced. How can statistics prove the day is clear? So, nightmares of "simple mastectomy" discussions occasionally agitated our dreamer.

Suddenly the whole matter sprang to life. Haagensen, Handley, Huggins, Dahl Iverson, Bittner, Margottini, McWhirter, Hare, to name a few; surgeons, pathologists, endocrinologists, roentgenologists reconsidered the matter and did something about it.

The pathological anatomy of the spread of breast cancer was re-examined. One speculated if perhaps the internal mammary lymph nodes comprise a first filtering station for carcinoma of the breast as metastasis, comparable with those lymph nodes in the axilla. Signs of op-

erability and inoperability were clarified and found wide acceptance throughout the surgical profession. New methods of local removal for cancer and its nodes were tried. Isolated blood borne metastasis were profitably excised. Hormonal dependent and hormonal nondependent types of cancer were recognized and treated. Gamma x-rays proved to be an advantageous new modality in therapy. The sleeper awoke and went furiously back to work.

Handley and Thackray (1) described the internal mammary lymph chain as lying posterior to the intercostal muscles, running from the 6th inner space to a node behind the sternal head of the sternocleidomastoid muscle where it discharges directly into the great veins of the neck. They called attention to the lymphatic spread in 150 cases of breast carcinoma in relation to the site of the primary growth by quadrants.

In 8 cases the internal mammary nodes were the only ones involved. Thus, internal mammary node involvement is much commoner in medial lesions than in outer quadrant lesions by 3 to 1.

Here is one of their charts:

	Site in Breast by Quadrants					
	upper inner	lower inner	central	upper outer	lower outer	total
All nodes free	11	4	1	28	5	49
Axillary nodes only positive	6	2	4	34	6	52
Internal mammary nodes only positive	4	0	2	2	0	8
Both axillary and internal nodes positive	10	7	10	13	1	41
Totals	31	13	17	77	12	150

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This general statement has been extensively investigated, and completely collaborated by many pathologists and surgeons (2). It leaves us with these considerations: Are the internal mammary lymph nodes, like the axillary nodes, a primary filter station wherein the tumor is held confined awhile? Or does the presence of cancer in these nodes mean categorical inoperability? In other words, should a routine radical mastectomy for medially placed lesions always include an internal mammary node dissection? And then the further consideration comes up; how about the supraclavicular chain? Finally, what is the most distant cancer bearing lymph node that lends itself to removal and "cure"? Whatever the answer, it is obvious that the question must be asked.

Haagensen and Stout (3) called attention to several clinical signs which indicate categorical inoperability. Viz:

1. Extensive oedema of the skin over the breast.
2. Inflammatory type of carcinoma.
3. Satellite nodules in the skin over the breast.
4. Intercostal or parasternal cancerous nodules.
5. Oedema of the breast.
6. Proved distant metastasis.
7. Gross supraclavicular metastasis.
8. The presence of two or more of the following signs:
  - a. skin ulceration
  - b. oedema of only half of the skin over the breast
  - c. fixation of the tumor to the chest wall
  - d. positive axillary lymph nodes over 2½ cms. in diameter
  - e. fixation of the axillary lymph nodes to the skin or deep structures of the axilla

These local signs mean that such extensive lymphangitic spread has taken place as to carry the tumor cells beyond the reach of surgical attack, or that the tumor is of such virulence as to render it uncontrollable from the first. This classification has been accepted by all surgeons. There is general agreement among the cogneseti on this principle although

each of us has to prove it again occasionally.

Haagensen (4) and others (5) have re-illustrated the techniques of a classical radical mastectomy, emphasizing the need for a meticulous removal of the lymph bearing skin, breast, muscles, and axillary contents from the midline anteriorly almost to the midline posteriorly as one single undefiled unit.

McWhirter, (6) and (7), feeling that surgery might spread the advancing cancer, tried treating a series of cases by gentle simple mastectomy and x-ray therapy. These patients have not yet given us an exact answer, but most students consider it an unfruitful method. Ackerman (8) studied these cases at first hand and decided that the results were not comparable with those of a meticulous radical mastectomy. This is another example of the fact that radical mastectomy adds only a 10 to 20 per cent increase salvage rate to the results obtained from a simple mastectomy.

In the other type of breast cancer which spreads primarily by hematogenous emboli and remains low in its virulence, a rare case has been found to extend our operative indications to include distant metastasis. In these patients, solitary metastasis appear long after the original operation, and remain torpid. Solitary pulmonary nodules (4) have been removed with a 2 to 4 year arrest of the disease. This represents a worth while salvage. An occasional local bone recurrence can be resected and will give long term freedom from trouble.

Dahl Iverson (9) and others (10) (11) (12) (13) decided to extend the present radical mastectomy to include other lymphatic fields. They are seeking an answer to the query raised by the frequent presence of internal mammary node involvement in a medially placed breast cancer, and also to re-examine the subject of supraclavicular metastasis.

At Dahl Iverson's clinic in Copenhagen, 376 cases of carcinoma of the breast were subjected to radical mastectomy. Some also had a complete radical neck dissection, and/or a dissection of the internal mammary lymph chain. This was accomplished with an operative mortality

of 1 per cent (one patient died from a pulmonary embolus, one of uremia, and one from a spontaneous perforation of a colonic diverticulum). In reviewing the series with respect to the internal mammary node problem, Dahl Iverson had 15 cases with parasternal involvement only; all of whom had been followed for 4 years. Of these, 6 or 40 per cent were living without recurrence, 7 or 47 per cent were living with recurrence, and 3 or 13 per cent were dead. Urban (11) subjected 28 cases to radical mastectomy and an internal lymph gland dissection. Out of 26 cases with positive internal mammary lymph nodes, he had 14 living and well, 3 years after the procedure.

These investigators do not feel that the matter is settled, but it would appear that internal node dissection will probably some day be accepted as being as much a part of radical mastectomy as axillary dissection in cases wherein the tumor originates in the medial half of the breast.

In the Swedish group of cases, there is a large number wherein a radical neck dissection was also done. In some of these, a radical neck dissection is combined with only a radical mastectomy and in some with a triple operation. Wagengsten (12) and Ariel (13) have also studied this aspect of the problem. It seems unlikely that a radical neck dissection will also be included as a routine treatment for carcinoma of the breast. This is true in spite of the fact that Dahl Iverson has 4 or 5 patients who had positive supraclavicular lymph nodes who are living and well 5 years after the triple operation without recurrent disease. These cases represent salvage, but it is the consensus of opinion that the matter will have to be further investigated before one can recommend it as a routine procedure. These articles, particularly those from the Scandinavian group, are well worth reading by practicing surgeons.

Animal research goes on apace. Muhlbock in a recent review found 4 proven forces in mouse mammary cancer.

1. Genetic constitution: Some pure bred mouse families never have breast carcinomas, others always do if the female lives long enough.

2. Hormonal supports are essential and determining in the occurrence of breast carcinoma.
3. Hormonal environmental influences are important, but apparently work through the hormonal systems.
4. The mammary factor of Bittner is active.

This interesting little item found in mice is an extra chromosomal factor transmitted through the milk from generation to generation. Cancer does occur in mice without the Bittner factor, but the factor is a major determinant in some situations. If the susceptible female mouse takes a drop of this in its milk, it will later develop carcinoma of the breast. If the young mouse does not ingest the factor, a very much lower incidence of breast cancer occurs. The factor's progression from generation to generation suggests virus multiplication as does its presence only with living cells.

Although none of these factors can be transported directly to human studies, they do widen our horizons, especially Bittner's work. Perhaps some forms of cancer are due to virus, and perhaps a vaccine for them can be worked out. The possibility that other types of cancers are metabolic errors or nutritional diseases is tempting.

These animal experiments have been joined to human experiences to work out suggestions for influencing the hormonal-enzyme milieu of the tumor for the patient's benefit. This has been done by adding exogenous hormones or chemicals, by suppressing the patient's own endocrine glands, or by removing them.

To find out if the tumor is hormone sensitive, and therefore presumably amenable to such treatment, one can observe the patient. A lactating or pregnant woman is most likely to have a tumor under hormonal control, as is a sexually young woman. The placenta is a potent endocrine organ which subjects the breast cancer to a high dose of circulating estrogen. Male patients with carcinoma of the breast almost always have a hormonal sensitive lesion. Senile, post menopausal females are least likely to have a hormonal dependent cancer.



If the patient has bone metastasis, carcinoma replaces bone volume for volume. An elevated blood calcium, or urine calcium output, will be present. When the patient is stabilized on 200 milligrams of calcium a day in the diet, 10 milligrams of Stillbesterol by mouth daily for 3 days will cause a rise in serum calcium or urine calcium excretion or both. The regimen of Stillbesterol will give the patient clinical symptoms of a rapid increase in the tumor's growth. A positive response is an indication of hormonal sensitivity in the tumor. Certain patients will be so adversely affected by the hyper-calcemia as to make this procedure dangerous (15). More detailed information should be sought from the references noted before applying this test.

Estrogen excretion studies are not yet available in Arkansas. When they do become available, they will tell us what the ovary is doing by the TO assay of conjugated inactive estrogens which come chiefly from the ovary, and the TZN determination of the urine steroid which come especially from the adrenal. This will give us a more exact indication for oophorectomy, adrenalectomy, and hypophysectomy.

Before resorting to surgery, it is possible to treat patients with metastasis from carcinoma of the breast which are hormone dependent by giving estrogens to the senile patients, and androgens to the younger. The all powerful ACTH and cortisone group can be given if these two have been tried and worn out. The attitude of some has been to vary the hormonal environment of the tumor one way or another until pragmatic twisting of the dials tunes in a favorable response. The above general statement will help to make the therapy more exact, however. It must be stated parenthetically that all of these patients will get temporary responses only, and none of them have ever been truly arrested by these palliative procedures.

The general consensus of opinion in the literature now, is that approximately 40 per cent of breast carcinomas are hormonal sensitive. It is felt also that x-ray castration is not as satisfactory as surgical oophorectomy; and further that operative removal of the endocrine glands has

something additional to offer beyond that obtained by suppression or stimulation of the endocrine system by administration of hormones. It is generally thought that if the patient is in the premenstrual age group, oophorectomy will benefit her when and if she develops metastasis. If she receives benefit from an oophorectomy, or if the tumor can be proven to be hormonal dependent, adrenalectomy will also help. It is probably well to do an oophorectomy, and then later an adrenalectomy, (see below) rather than discharging both barrels of the shotgun at the same time.

It has been conjectured that if oophorectomy and adrenalectomy help, perhaps removal of the pituitary will short circuit and remove the influence of all the ovarian and adrenal steroids, and of the pituitary growth hormone at one time. Olivercrona and Luft (16) report on 50 cases of hypophysectomy in cancer growth of the breast, and Ray and Pearson (17) on 75 cases (they now have extended their experience to over 125 operations.) This operation is moderately tricky to do with a mortality of around 5 to 10 per cent. Disturbance of the olfactory and optic nerves occasionally happens. Contraindications are liver, or brain metastasis, and age greater than 60 in women, moribund people, and very malignant tumors. Remissions will be obtained in a third to a half of the survivors and is most apparent in local, node and bone involvement. The post operative care is said to be no more difficult than after adrenalectomy. Summarily (18) speaking, the post operative patient may be maintained on approximately 50 milligrams of cortisone daily by mouth. Hypothyroidism, which develops one to two months after the operation, can be controlled by 60 to 180 milligrams of desiccated thyroid. Approximately a third will develop diabetes insipidus. This can be treated by doses of pitressin tannate in oil ranging from 2 or 3 units every 2 days to 5 units every 5 days, or by the nasal insufflation of Armour's posterior pituitary powder. Further work will have to be done on the subject, but it is now thought that hypophysectomy should be tried after oophorectomy and before an adrenalectomy in handling these patients.

It may be stated categorically that males with carcinoma of the breast which has metastasized will usually obtain a strikingly favorable remission of their symptoms by castration. This simple procedure is one which should be routinely employed when necessary. Apparently, hypophysectomy also should be offered more freely to these patients than to women.

Women with cortical stromal hyperplasia of the ovaries may have, and probably do have, a much higher incidence of carcinoma of the breast than average women. (19) (20) Gynecologists should subject such women to frequent prophylactic examination of the breasts in order to discover early lesions.

Cobalt instillations give radiologists relatively inexpensive therapy modalities equivalent to a 3 MEV supervoltage x-ray treatment facilities. This cobalt gamma irradiation is to my view, a better therapeutic agent for the treatment of cervical mediastinal and deep bone lesions than the conventional 250 KV machines. Part of the benefit comes from the highly penetrating character of the gamma ray, and it is not clear that the gamma ray itself has a selective action. Clinically, these patients do better. It should not be forgotten that x-ray is the best palliation now known for isolated bone metastasis. It must also be said however, that the personal supervision of a competent roentgentherapist is vital.

The subject of breast cancer is partaking of the general intellectual ferment which is stirring our scientific world. The success of research into the viral-enzyme relations in human physiology and nucleic acid chemistry promises us new worlds and conquests. We can hope that some day soon carcinoma of the breast will be a medical disease instead of a heart breaking surgical effort.

At the present time, it is true that all solitary breast lumps must be excised in the operating room, and immediately examined by frozen section. Operable cases should be subjected to a radical mastectomy as soon as possible in order to obtain a long term arrest or cure. Perhaps an internal mammary dissection should be

added to the conventional operation. Purposeful manipulation of the tumor's hormonal environment will give 50 per cent of formerly hopeless patients 2 or 3 years more of useful life. X-ray treatment continues to be the main stay in isolated metastasis, although a few are amenable to surgical removal.

The results of treatment of carcinoma of the breast are improving year by year, and will soon be good, thanks to physicians and research workers from all over the world.

Dr. W. G. Cooper, Jr.

#### REFERENCES

1. Handley, R. S., and Thackray, A. E. *Brit. Med. J.* 1: 61-63, 1954.
2. Tobiassen, I.; Sorensen, B., and Hasner, E. *Acta Chir. Scandinav.* 107: 206, 1954.
3. Haagensen, C. D., and Stout, A. P. *Ann. Surg.* 118: 859-870; 1032-1051, 1943.
4. Haagensen, C. D.: *Diseases of the Breast*, loc. cit., 389. W. B. Saunders Company, Philadelphia and London, 1956.
5. Cooper, W. G. *Am. Surg. J.*, (Nov.) 1957 (to be published).
6. McWhirter, R. *Brit. J. Radiol.* 28: 128, 1955.
7. *Brit. Med. J.* 2: 542, 1957.
8. Ackerman, L. *Cancer*, 8: 883, 1955.
9. Andreassen, M., Dahl-Iverson, E., and Sorensen, B. *Acta Chir. Scandinav.* 111: 456, 1956.
10. Wagensteen, O. H. *Surg.*, 41: 857, 1957.
11. Urban, J. A. *Surg. Clin. N. Am.* (Aug.) 36: 1056, 1956.
12. Wagensteen, O. H., and Lewis, F. J. Arhelger, S.W. *Surg. Clin. N. Am.* (Aug.) 36: 1051, 1956.
13. Ariel, I. M. *Surg. Gynec. & Obst.* 100: 623, 1955.
14. Muhlbock, O. *Advances in Cancer Res.* 4: 371, 1956.
15. Jessiman, A. G., and Moore, F. D. *New Eng. J. Med.*, 254: 846, 900, 947, 961, 1956.
16. Olivercrona, H., and Luft, R. *Ann. Roy. Coll. Surgeons*, 20: 267, 1957.
17. Ray, B. S., and Pearson, O. H. *Ann. Surg.* 144: 394, 1956.
18. Lipselt, M. B., and Pearson, O. H. *Medical Clin. N. Am.* (May) 773, 1956.
19. Sommers, S. C., and Teloh, H. A. *Arch. Path.*, 53: 160-166, 1952.
20. Smith, G. V.: *Textbook of Endocrinology*, 2nd Ed. Editor: R. H. Williams, Saunders, Philadelphia, 350, 1955.



# Glycocyamine Betaine as an Adjunct in the Treatment of Neuromuscular Disease Patients

JOHN H. ALDES, M. D., F. A. C. S.\*\*

Physiological energy is an important factor in the rehabilitation of the individuals with neuromuscular disease. It is the accepted opinion that energy for neuromuscular functions is derived directly from adenosine triphosphate (ATP) which is replenished from the reservoir of creatine phosphate (CrP). A deficiency of physiological energy to meet the demands of normal daily living and especially the increased demands of rehabilitation are most keenly felt by patients afflicted with debilitating neuromuscular diseases, such as multiple sclerosis, with which we have been concerned.

Since the etiology of multiple sclerosis remains unknown, it necessarily follows that there is yet a cure to be found. In the 135 years since this disease has been known as multiple sclerosis numerous methods of treatment have been brought forth by the medical profession and the laity. On each occasion high hopes were held by those afflicted, only for them to be disappointed when the claims were not substantiated by the results obtained.

As physicians it is our responsibility to help the estimated 250,000 multiple sclerosis patients in the United States. Even though a cure is not known today, research continues, and it is possible that the etiology of multiple sclerosis can be learned in the near future, and with this knowledge a cure could then be developed. Individuals afflicted with multiple sclerosis must be kept in the best possible physical condition for the time when they may benefit by the fruits of research.

Through practical experience we have learned that the most successful method of caring for these patients is the team

approach for rehabilitation in which the patient is treated as a whole, not just for specific symptoms. All medical specialists play an important role in the rehabilitation program; the internist, neurologist, urologist, gynecologist, orthopedist, psychiatrist, ophthalmologist and the rehabilitationist. The patient must be kept in good physical condition in order to gain the greatest benefit from the functional phase of rehabilitation. This phase is an integrated program of physical medicine such as physical therapy, corrective therapy, occupational therapy, speech therapy. The program must also include re-training in daily active living, wherein the psychologist, vocational counselor, and medical social service worker plan an active part. The rehabilitation program is thus geared to treat the whole individual and not just his disability.

In the functional phase of rehabilitation we found an all active resistive therapy program to be of great value. The concepts of Kabat and Delorme, that active exercise therapy, whether neuromuscular re-education of the patient with paralysis, physical conditioning in convalescence, or exercise training of motor skills in the normal person, are based on the principles of the physiology of neuromuscular mechanisms (1, 2, 3).

The reflex resistive exercise phase of our rehabilitation program for the multiple sclerosis patient is both active and passive, assisted and unassisted. This program is carried out under the supervision of a therapist at a minimum of three times a week. In addition the program is supplemented by a home program with assistance given the patient by a member of the family, and a phase performed actively by the patient.

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Fatigue is avoided at all times and the program is geared so that no part is extensive or lengthy enough to cause injury to the musculature by over exertion.

Naturally, this program entails the utilization of physiological energy. We find that with activity, the multiple sclerosis patient suffers from muscular weakness which leads us to believe that this might be associated with a depletion of useable energy. It is well established that the utilizable energy of tissues in general resides in the energy of phosphate groups present in the so-called high energy phosphates. ATP decomposes into adenosine diphosphate (ADP) and inorganic phosphate and yields energy directly for tissue function. Creatine phosphate represents a reservoir of energy readily and quickly convertible into the energy of ATP by reaction with ADP. These processes may be represented as follows:

$ATP + ADP \text{ inorganic phosphate} = \text{utilizable energy}$

$ADP + \text{creatine phosphate} = ATP + \text{creatine}$

ATP and creatine phosphate are formed in tissues of the body chiefly through the oxidation of fats, carbohydrates and amino acids by mechanisms associated with the tricarboxylic acid cycle, though some of it comes from glycolytic breakdown of glucose and glycogen. Any condition which interferes with the formation of these substances or leads to their depletion so that abnormally low concentrations are present in tissues, proportionately decreases the efficiency of tissue function (4).

In order to combat this depletion of utilizable energy in these patients, we considered that the administration of a substance convertible to creatine phosphate in the tissues might help to replenish the energy reserve. Glycocyamine (guanidoacetic acid) is normally methylated to creatine in the liver (5), and it has been shown that the administration of glycocyamine and the methylating agent betaine will significantly raise the level of creatine phosphate in muscle (6, 7). It seemed worthwhile, in view of these circumstances, to try the effect of glycocyamine and betaine (Betasyamine) upon multiple sclerosis patients. This use of

betaine and glycocyamine (Betasyamine) represents a new approach in replacement therapy. (Figure 1)

RELATION OF GLYCOCYAMINE AND BETAINE TO MUSCLE ENERGETICS

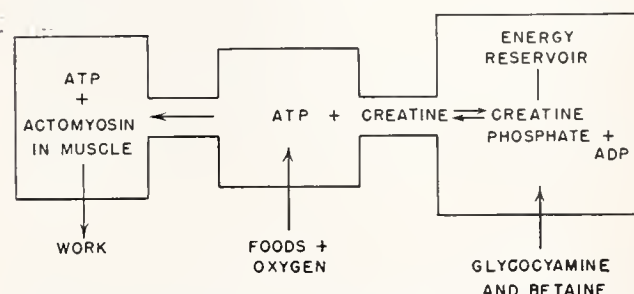


Figure 1. Relation of glycocyamine and betaine (Betasyamine) to muscle energetics.

While such treatment is of no significance in healthy persons possessing normal energy reserves, in many diseased, debilitated, and stress states, tissue function may be decreased and efficiency impaired (8). Therefore, glycocyamine and betaine (Betasyamine) are specifically indicated for any patient whose condition may be associated with impaired energy production or storage. Such metabolic impairment appears to be present in neuromuscular diseases with anxiety tension fatigue.

During the treatment of neuromuscular diseases — multiple sclerosis category — the anxiety tension fatigue syndrome is almost always present and is most difficult to combat. This clinical entity, characterized by variations in mood, is usually accompanied by disturbance of bodily functions, such as tachycardia, tightness of neck muscles, gastrointestinal distress, allergic reactions (9), and an anxiety that may be expressed as overwhelming exhaustion. If allowed to go untreated, these patients eventually present a clinical picture which is chronic and disabling. The fatigue resulting from such anxiety tension has been shown to be associated with significantly lower levels of creatine phosphate in the muscles, indicating a state of depleted energy (10).

It has been proven that glycocyamine and betaine (Betasyamine) aid in the management of the anxiety fatigue syndrome because they help replenish energy



reserves and enable severely fatigued patients to relax (11). We have found multiple sclerosis patients more relaxed and more amenable to rehabilitation with this adjunctive therapy.

In 1952, in order to further substantiate this theory, we began a preliminary study into the use of glycocholine and betaine (Betacholine) in the rehabilitation of the patient with neuromuscular disease. One hundred multiple sclerosis patients were placed on a total rehabilitation program. These patients were divided into two groups, one of which received a total rehabilitation program plus glycocholine and betaine (Betacholine) and the other group received the same rehabilitation program but a placebo instead of glycocholine and betaine (Betacholine). The groups were equal in average age, sex, and duration of the disease, and had been followed by our clinic for at least two years prior to this study. The rehabilitation program consisted of ambulation, coordination, speech, daily activities, and reflex heavy resistive exercises. (Figures 2, 3, 4, 5, 6, 7, 8, 9, 10, 11). All patients were on a supervised program in the clinic at least three times a week, and on a home program carried out at least twice a day. In addition to being re-checked at frequent intervals by members of the rehabilitation center, the patients were evaluated at three month intervals by a medical team consisting of an internist, urologist, orthopedist, ophthalmologist, and a neurologist. The glycocholine and betaine (Betacholine) was administered in tablet form, five tablets every four hours. Each tablet contained glycocholine 0.2 grms. and betaine anhydride 0.866 gms. After one year it was obvious that the patients receiving the drug and rehabilitation showed more definite improvement than those receiving rehabilitation alone.

The results of this preliminary study (12) revealed the objective findings to be: increased tonicity of muscle; increased range of motion of the extremities; better muscular strength upon manual resistance by the therapist; increased coordination in ambulation; amelioration of depressive psychosyndrome.

Subjective findings as shown by this study were: sure-footedness; a sense of general well-being; increased muscle activity; diminished neuromuscular symptoms, such as tingling and numbness of the extremities; elimination of the muscular twitching; and diminished physical signs of depressive psychosyndrome.

In addition to measurable neuromuscular improvement, patients on glycocholine and betaine (Betacholine) usually experienced a sustained sense of well-being that was a valuable asset in helping them to accept their condition and encouraging them to more active participation and cooperative attitudes toward rehabilitation.

In the group that were on rehabilitation plus a placebo, the objective and subjective signs mentioned previously were not noted. This group became fatigued more easily, and the program had to be decreased in about one third of the group.

This preliminary study revealed to us that glycocholine and betaine (Betacholine), when administered together with a total rehabilitation program, enabled many patients to obtain improved muscle tone, decrease in fatigue, increased endurance, and the definite feeling of well-being.

The results in this study also substantiated the theory that muscle exercise stimulates not only the rate of utilizing high energy phosphates but also the rate of formation. A well exercised muscle is not only more efficient in utilizing energy but also in producing it. Thus, muscular activity enhances both the stimulus of glycocholine and betaine (Betacholine) to ATP and creatine phosphate formation and also the efficiency of their utilization in contraction.

In order to obtain more definitive evidence as to the importance of creatine phosphate levels in the muscles of multiple sclerosis patients, a group of 126 patients was divided into four sections. One section received total rehabilitation and glycocholine and betaine (Betacholine) (Code 1; 32 patients); another received total rehabilitation and placebos (Code 2; 29 patients); the third group received the drug and a home program (Code 3; 34 patients); and the fourth group were



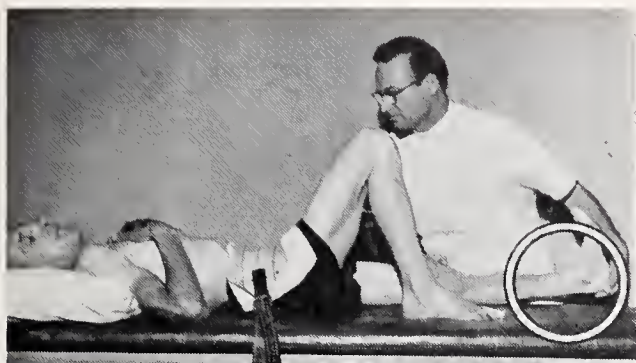


Figure 2. Stretching of the Achilles Tendon.

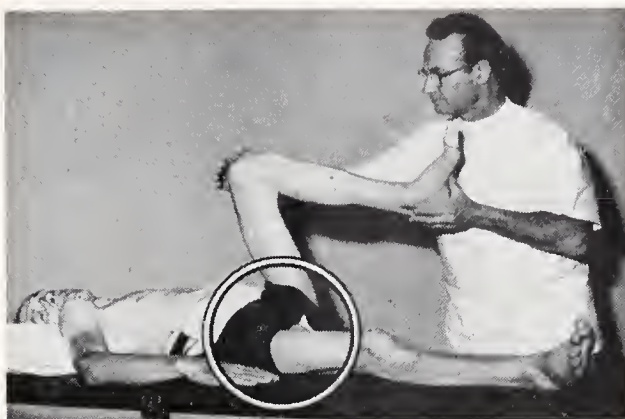


Figure 6. Deep rotation of hip and hip extensors.



Figure 3. Stretching of the hamstring muscle.

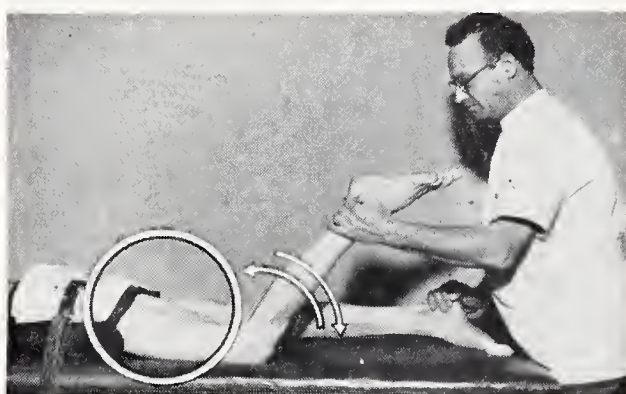


Figure 7. Applying resistance to the hamstrings and quadriceps muscle groups.

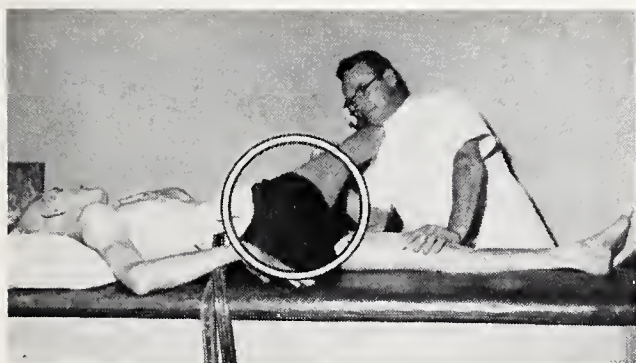


Figure 4. Stretching of the tensor lata muscles.

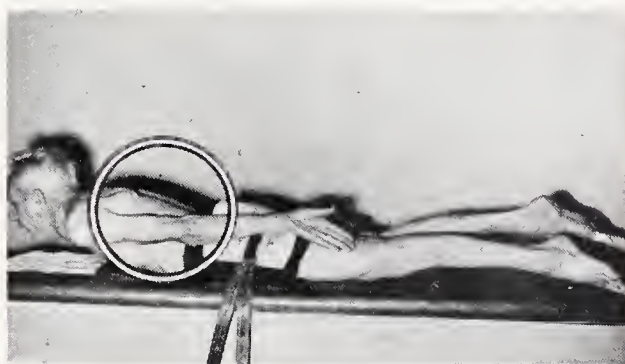


Figure 8. Arching of the back and cervical areas.

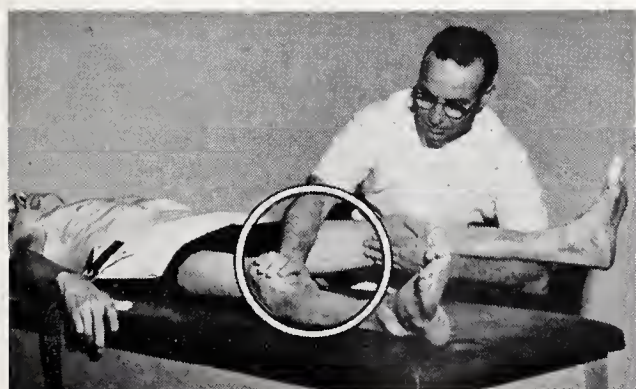


Figure 5. Stretching of the adductors of the hip.

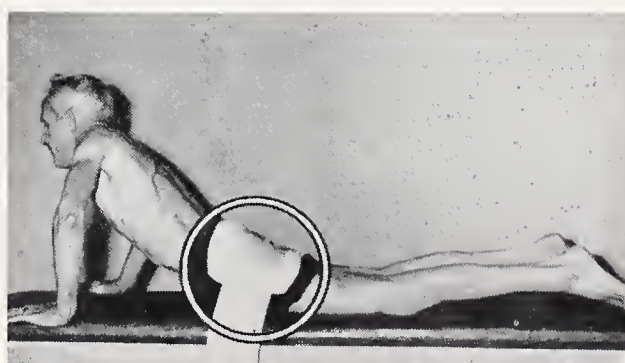


Figure 9. Push-ups and stretching of the hip flexors and ilio-psoas muscle groups.





Figure 10. Rotation of the trunk.



Figure 11. Injection of 1% zylocaine hydrochloride into the subcutaneous layers over the lateral aspect of the quadriceps.

given the home program and placebos (Code 4; 31 patients). The drug dosage was the same as in the preliminary group. In this and the preliminary group the patients were equal in average age, sex and duration of the disease and were ambulatory either unaided or with the use of canes or crutches, and had been followed by our clinic for at least two years prior to the study.

Each patient in this group had a complete medical examination including liver and kidney function tests, blood and urine analyses. These tests were made just prior to the beginning of the study. The entire group showed no abnormal changes in their kidney, liver, blood and urine examinations. These tests were repeated every three months during the eighteen month program.

In addition to the regular program, muscle biopsies were performed on the quadriceps muscles of the weaker leg. Second

and third biopsies were done at intervals. The muscle tissue was analyzed for high energy phosphate and other fractions by Peterson and West, Department of Biochemistry, University of Oregon Medical School, who were co-investigators in this program (13, 14).

There were 126 biopsies taken, 113 of which were analyzed. These included 14 controls, 55 initial biopsies, 34 second biopsies and 10 third biopsies.

The biopsies were taken using 1% novocaine or zylocaine hydrochloride injected subcutaneously into the muscle. When the skin was well anesthetized (after 2 to 5 minutes) the incision was made, skin bleeders clamped, and the fat pad cut exposing the muscle. A muscle sample averaging 3 cm. x 4 cm., or approximately 2 to 4 grams was quickly excised (average, 21.5 seconds) and plunged into CO<sub>2</sub> acetone mush until crisply frozen.

Each frozen muscle sample was wrapped separately in aluminum foil stored in CO<sub>2</sub> ice and shipped by air from Los Angeles to Portland, Oregon (University of Oregon) where they were analyzed. (Figures 12, 13, 14, 15, 16, 17, 18, 19, 20).

A comparison of the data on 46 multiple sclerosis patients and 14 controls analyzed over the same period shows no difference in inorganic phosphate, creatine phosphate, ADP plus ATP, total acid soluble phosphate, total phosphorus, dry weight, creatine, or free sulfhydryl groups. The total nitrogen was slightly but statistically lower in the patients with multiple sclerosis than in the control group. (Figure 21).

The multiple sclerosis patients in Group 1 — rehabilitation plus glycyamine and betaine (Betasyamine) — showed no significant difference in chemical composition between the initial muscle samples and the samples taken after one and one half months to eleven months (average 6.8 months) of therapy. (Figure 22).

In the patients in Group 2 — rehabilitation and placebos — analysis of the initial samples and of samples taken after four to eleven months (average 6.8 months) of therapy, showed significant





Figure 12. Incision of the skin and subcutaneous tissue.



Figure 15. Implantation of anti-coagulant (Gelfoam) into muscle bed.



Figure 13. Excision of muscle sample.

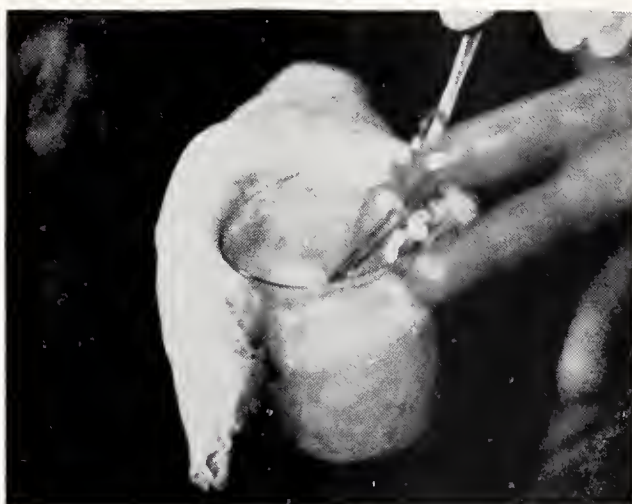


Figure 16. Freezing of muscle sample in CO<sub>2</sub> acetone mush.



Figure 14. Specimen of muscle still attached to muscle bed.



Figure 17. Frozen muscle on aluminum foil in preparation for wrapping.



decreases in creatine phosphate and ADP plus ATP. (Figure 23)

The subjective and objective findings in this group were the same as those noted in the preliminary group. In order to obtain more positive data on our objective findings, we performed strength tests on the upper extremities with the use of a hand grip dynamometer and on the lower extremities by means of weight raising. (Progressive resistive exercises). In addition we recorded measurements of the circumferences of the thighs and calves, 5" above and 5" below the knee joint. These measurements and strength tests were taken prior to the patient's starting on the program, at three month intervals, and one year later.

The male patients in Group 1 — total rehabilitation plus glycoamine and betaine (Betasyamine) showed an average increase in strength of left hand grip of 16.7 per cent and an average increase of strength in the right hand grip of 13.6 per cent. The female patients in this group showed an increase in left hand grip of 18.4 per cent and a 15.4 per cent increase in the right hand grip. The patients in this group were all right handed.

The strength of the lower extremities of the male patients showed an average increase of 45.5% of the left and 22.2% of the right. In this group the left leg was the affected one. The strength of the lower extremities of the female patients showed an average increase of 50% of the left and 50.1% of the right, and the right leg was the affected leg.

The circumference of the thigh in the males showed an average increase of 1.5" on the left, and 1.5" on the right. The females showed 0.98" on the left and 1.31" on the right. The circumference of the calf of the males showed an average increase of 0.5" on the left and 1.0" on the right, while the females showed 1.72" on the left and 1.29" on the right.

The patients in Group 2 — those on rehabilitation plus a placebo showed a 50 per cent smaller increase in strength and measurements than those in Group 1 — rehabilitation plus the drug. The patients in Group 3 — the drug plus a home program — showed no appreciable

changes. The patients in Group 4 — a home program and placebo — showed a decrease in strength as well as in measurements of the calf and thigh.



Figure 18. Specimen of muscle wrapped in aluminum foil and placed in dry ice for shipment.

COMPOSITION OF MUSCLE FROM CONTROLS AND MULTIPLE SCLEROSIS PATIENTS (INITIAL BIOPSY)										
	No. of Biopsies	IP mg P /100g	CrP mg P /100g	ADP + ATP mg P /100g	TASP mg P /100g	Total Phos mg per 100g	Total Nitrogen %	Dry Weight %	Creatine mg per 100g	-SH mg per 100g as GSH <sup>(1)</sup>
Control	14	19.1 51 <sup>(2)</sup>	59.4 13	33.6 ±10	145.8 ±2.8	188.7 ±2.6	3.05 ±.05	23.5 ±.38	3.60 ±.73	44.1 <sup>1</sup> ±2.2
Multiple Sclerosis	46	18.1 ±5	60.4 ±10	31.5 ±6	135.6 ±2.3	186.0 ±3.1	2.91 ±.04	23.5 ±.22	3.85 ±.74	41.1 <sup>1</sup> ±2.1
p <sup>(1)</sup> Control vs Multiple Sclerosis		>.10	>.10	>.10	>.025	>.10	<.01	>.10	>.05	>.10

All values are corrected on the basis of the average control dry weight of 23.5 per cent

<sup>1</sup> Probability of the difference being due to chance      + n: 9  
<sup>2</sup> Standard Error      1 n:14  
<sup>3</sup> GSH: Glutathione

Data presented Fed. Am. Soc. Exper. Biol., 1956 and 2nd Inter. Congress of Phys. Med., 1956 by Aldes, J. H., Peterson, R. D. and West, E. S.

Figure 19. Illustrations showing various steps in muscle biopsies.

Rehabilitation, Medical, Glycoamine plus Betaine Differences between Initial and Repeat Biopsies									
MB	IP Mg % as P	CrP Mg % as P	ADP + ATP Mg % as P	TASP Mg % as P	TP Mg % as P	Creatine Mg %	Total Nitrogen %	Dry Weight %	Clinical Progress
									Initial Repeat
2	+9	+10	+9	+52	+53	-33	+0.4	+1.3	0 +2
4	0	-5	+3	-3	—	-8	-0.1	-1.1	0 +1
5	-2	0	0	+6	-2	+17	-0.1	-0.3	0 +1
7	0	-4	+2	+4	—	-34	0	+0.8	0 +1
9	+1	-6	-7	+3	—	-49	-0.1	+3.3	0 +1
11	-3	+19	+4	+20	—	+165	+0.3	+3.5	0 +1
15	+5	-6	+1	—	+1	-6	0	-0.1	0 0
17	+2	-7	+1	—	-36	-114	+0.2	+0.2	0 +1
25	+4	+10	-1	+38	+26	+31	+0.2	-1.3	0 +3
30	+2	-7	+3	+11	-35	-5	+0.2	-0.3	0 -1
48	+7	+2	+6	+21	-20	+64	+0.1	-0.2	0 +1
67	-1	+14	+4	+27	+2	+43	—	+1.8	0 +1
69	0	+15	+10	+9	+18	+103	-0.5	-3.9	0 +3
70	+2	+4	-2	+8	-20	+45	-0.1	-0.3	0 +1
71	+4	-3	-6	+6	-20	+53	0	-0.8	0 +1
73	-5	+25	+4	+21	+14	+84	+0.5	+0.8	0 +2
AV	+17	+3.8	+1.9	+15.9	-1.6	+22.2	+0.1	+0.3	
SE*	0.9	2.5	1.2	4.0	7.6	16.7	.07	0.4	
p**	>.10	>.10	>.10	<.005	>.10	>.10	>.025	>.10	

\* Standard error  
\*\* P for control vs treated

Figure 20. Illustrations showing various steps in muscle biopsies.

GLYCOCYAMINE BETAINE AS ADJUNCT IN TREATMENT OF NEUROMUSCULAR DISEASE

Rehabilitation, Medical, Placebos											
Differences between Initial and Repeat Biopsies											
Biopsy No	IP Mg % as P	CrP Mg % as P	ADP		TASP Mg % as P	TP Mg % as P	Creatine Mg %	Total Nitrogen	Dry Weight	Clinical Progress	
			ATP Mg % as P	Mg % as P						Initial	Repeat
8	-1	-1	-9	+14	+8	-17	+0.2	-0.6	0	-2	
14	0	-6	-2	+1	-24	-32	+0.4	+3.4	0	+1	
19	+2	-6	-8	—	-23	-68	+0.1	+3.9	0	-1	
22	+1	3	-5	—	+8	+4	+0.6	+0.7	0	-1	
29	+2	-13	-5	-8	-20	-87	-0.4	+1.2	0	-2	
31	+4	-18	-3	—	-26	-73	0	+0.4	0	-1	
34	+3	-5	-1	+15	-15	-57	+0.4	-1.0	0	+1	
37	+6	35	-7	-30	-37	-215	+0.1	-0.4	0	0	
39	+2	-16	-5	-35	-22	-43	—	+3.6	0	0	
40	+1	0	-2	+3	+7	+13	+0.3	-0.8	0	0	
41	+1	-15	-4	-26	-7	-2	-0.5	-0.6	0	0	
42	+3	-15	-2	-31	-10	-52	+0.2	+4.6	0	0	
AV	+2.0	-11.1	-4.4	-10.8	-13.4	-52.4	+0.13	+1.2			
SE *	0.6	3.0	0.8	7.1	4.5	18.2	0.1	0.6			
p**	<.01	<.005	<.005	>.10	>.025	>.025	>.10	>.05			

\* Standard error  
\*\* P for control vs treated

Figure 21. Table 1: Control vs. multiple sclerosis patients.

Rehabilitation, Medical, Glycocyamine plus Betaine										
Differences between Initial and Repeat Biopsies										
MB	IP Mg % as P	CrP Mg % as P	ADP + ATP Mg % as P	TASP Mg % as P	TP Mg % as P	Creatine Mg %	Total Nitrogen %	Dry Weight %	Clinical Progress	
									Initial	Repeat
AV	+1.7	+3.8	+1.9	+15.9	-1.6	+22.2	+0.1	+0.3	0	+1.4
SE*	0.9	2.5	1.2	4.0	7.6	16.7	.07	0.4		
p**	>.10	>.10	>.10	<.005	>.10	>.10	>.025	>.10		

Figure 22. Table 2: Group 1—Rehabilitation, medical, glycocyamine and betaine (Betasyamine), difference between initial and repeat biopsies.

Rehabilitation, Medical, Placebos											
Differences between Initial and Repeat Biopsies											
Biopsy No	IP Mg % as P	CrP Mg % as P	ADP + ATP		TASP Mg % as P	TP Mg % as P	Creatine Mg %	Total Nitrogen %	Dry Weight %	Clinical Progress	
			Mg % as P	Mg % as P						Initial	Repeat
AV	+2.0	-11.1	-4.4	-10.8	-13.4	-52.4	+0.13	+1.2	0	—	.4
SE*	0.6	3.0	0.8	7.1	4.5	18.2	0.1	0.6			
p**	<.01	<.005	<.005	>.10	>.025	>.025	>.10	>.05			

\* Standard error  
\*\* P for control vs treated  
Data presented Fed of Am Soc Exptl Biol 1956 and 2nd Inter. Congress of Phys Med, 1956 by Alders, J.W., Peterson, R.D. and West, E.S.

Figure 23. Table 3: Group 2—Rehabilitation, medical, placebos, difference between initial and repeat biopsies.

ANALYSIS OF MUSCLE FROM MULTIPLE SCLEROSIS PATIENTS BEFORE TREATMENT (CONTROL), THEN ON REHABILITATION PLUS PLACEBOS (CODE 2), AND FINALLY ON REHABILITATION PLUS GLYCOCYAMINE PLUS BETAINE (CODE 1)													
Biopsy	Time from Wound Incision	IP Mg% as P	CrP Mg% as P	ADP		TASP Mg% as P	TP Mg% as P	Creatine mg	Total Nitro- gen %	Dry wt gnt %	Clinical Progress		
				ATP Mg% as P	Mg% as P						I	R1	R2
29 R1 6mo Placebo	25	15	15	27	113	163	374	3.1	24.4				
I-R1	-1	+2	-13	-5	-8	-20	-0.7	-0.4	+1.2	0	-2	+2	
R2 10mo GB	28	15	49	22	110	168	332	2.6	27.8				
R1-R2	+4	-2	+7	0	+5	+25	+55	0	+2.3				
37 R1 8mo Placebo	14	19	74	36	160	205	505	3.0	22.9				
I-R1	+6	+6	-35	-7	-30	-37	-215	+0.1	-0.4	0	0	+2	
R2 4mo GB	17	17	65	29	136	166	422	2.9	24.4				
R1-R2	-3	-8	+26	0	+6	+20	+132	-0.1	1.9				
22 R1 7mo Placebo	16	17	65	34	195	350	2.8	22.2					
I-R1	+6	+1	-3	+	+	+8	+4	+0.6	+0.7	0	-1	+2	
R2 18mo GB	24	20	73	42	167	199	402	3.2	21.1				
R1-R2	+2	-1	+11	+13	+7	-0	+140	-0.2	-1.4				

All values are corrected on the basis of the average control dry weight of 23.5 per cent  
I = before treatment  
R1 = rehabilitation plus placebo  
R2 = when initial plus glycocyamine and betaine

Figure 24. Table 4: Analysis of muscle from multiple sclerosis patients before treatment (control), then on rehabilitation plus placebo—Group 2—and finally on rehabilitation plus glycocyamine and betaine (Betasyamine)—Group 1.

These objective findings give further proof that the administration of glycocyamine and betaine (Betasyamine) along with a rehabilitation program enables the patient to maintain control levels of creatine phosphate, ADP plus ATP in his muscle.

From the above data it appears that while the untreated multiple sclerosis patients do not differ from the controls in any of the compounds analyzed, they cannot support the additional exercise included in the rehabilitation program without decrease in the high energy phosphate compounds of muscle. This decrease in creatine phosphate and ADP plus ATP can be prevented by the administration of glycocyamine and betaine (Betasyamine).

In order to further substantiate our findings in the use of glycocyamine and betaine (Betasyamine) as an adjunct in the rehabilitation of neuromuscular disease patients — multiple sclerosis category — we have taken patients representative of each group and done third biopsies on them after reversing their programs; that is, after the second biopsy a patient in Group 2 — on rehabilitation plus placebo — was transferred to Group 1 — rehabilitation plus glycocyamine and betaine (Betasyamine) and after an average of three months on this program we did a third biopsy. Figure No. 24 reveals the findings in three of these cases that were changed from Group 2 to Group 1. Both clinically as well as in the biochemical analysis of the muscle, a vast improvement was noted. Those who clinically showed a decline when they were in Group 2 improved after they were transferred to Group 1, and as you will note in the biochemical analysis, (Figure 24) there was also an increase in the levels of creatine phosphate and ADP plus ATP in the muscle.

The critical importance of energy in the form of ATP and creatine phosphate to the formation, maintenance and function of all kinds of tissues is well established. The depletion of these substances during therapy in patients with multiple sclerosis would inevitably decrease the functional and regenerative efficiency of the tissues. The administration of glyco-



cyamine and betaine (Betasyamine) prevents a decrease of the levels of ATP and creatine phosphate during rehabilitation therapy, maintaining the functional action of the tissue.

#### SUMMARY

1. A control study was made on the use of glycocyamine and betaine (Betasyamine) plus rehabilitation on a group of 226 neuromuscular patients — multiple sclerosis category — over a period of five years.
2. The studies revealed that when the drug, glycocyamine and betaine (Betasyamine) was given in adequate doses and over a sufficient period of time, together with a rehabilitation program, the patients showed symptomatic relief, functional improvement, increased strength and muscle tone, and a sense of well-being.
3. In this group of 226 patients, biochemical analyses were made on 113 samples of quadriceps muscle.
4. The clinical findings as well as the biochemical analyses have demonstrated that the individuals on glycocyamine and betaine (Betasyamine) plus a rehabilitation program showed marked improvement clinically and maintained the control levels of creatine phosphate and ADP plus ATP in their muscles after four to twelve months on this regime.
5. The patients on the rehabilitation program plus a placebo showed a decline in their general condition and a decrease in the levels of creatine phosphate and ADP plus ATP in their muscles, which shows that these patients cannot support the additional exercise in the rehabilitation program without a decrease in the high energy phosphate compounds of the muscles.
6. The patients on the drug alone or on the placebo without a rehabilitation program showed no change.
7. This control study reveals that the administration of glycocyamine and betaine (Betasyamine) prevents a decrease in the levels of ATP and creatine phosphate of muscle during re-

habilitation therapy, thereby maintaining the integrity of the tissue.

8. Glycocyamine and betaine (Betasyamine) does not affect a "cure" for multiple sclerosis but has proven to be valuable adjunctive therapy in the rehabilitation of the multiple sclerosis patient.

#### BIBLIOGRAPHY

1. Kabat, Herman: Studies of Neuromuscular Dysfunction X: Treatment of Chronic Multiple Sclerosis with Neostigmine and Intensive Muscle Re-Education, *permanente Foundation Medical Bulletin*, Vol. V, No. 1, March 1947.
2. Kabat, Herman: Studies on Neuromuscular Dysfunction XII: New Concepts and Techniques of Neuromuscular Re-Education for Paralysis, *permanente Foundation Medical Bulletin*, Vol. VIII, No. 3, July 1950.
3. DeLorme, Thomas L., Watkins, A. L.: *Progressive Resistance Exercises*.
4. West, E. S., and Todd, W. R.: *Textbook of Biochemistry*, 2nd Ed., New York, The Macmillan Company, 1955, p. 1017.
5. West, E. S., and Todd, W. R.: *Textbook of Biochemistry*, 2nd Ed., New York, The Macmillan Company, 1955, p. 1113.
6. Peterson, R. D., Beatty, C. H., Dixon, H. H., and West, E. S.: Effects of Glycocyamine on Creatine Phosphate Levels in Rat Muscle, *Federation Proceedings*, 339:254 (March 1953).
7. Peterson, R. D., Beatty, C. H., Bocek, R. M., Dixon, H. H., and West, E. S.: *Archives, Biochem. and Biophys.*, 54:349 (1955).
8. Spaulding, W. B.: Fatigue—Its Clinical Significance, *Canadian M.A.J.*, 70:570 (December 1953).
9. Speer, F.: Allergic Tension Fatigue in Children, *Annals Allergy*, 12:168 (March-April 1954).
10. Dixon, H. H., Peterson, R. D., Dickel, H. A., Jones, C. H., and West, E. S.: High Energy Phosphates in the Muscles of Depressed and Fatigued Patients, *Western Jour. Surg. Obstet. & Gyn.*, 62:327 (July 1952).
11. Dixon, H. H., Dickel, H. A., Shanklin, J., Peterson, R. D., and West, E. S.: Therapy in Anxiety States and Anxiety Complicated by Depression, *Western Jour. Surg. Obstet. & Gyn.* 62:338, (June 1954).
12. Aldes, J. H.: Use of Betasyamine as an Adjunct to Rehabilitation of Neuromuscular Diseases, *Prel. Report, Bulletin of Biological Sciences Foundation*, Vol. 1, No. 1 (April 1954).
13. Peterson, R. D., and Aldes, J. H.: *Federation Proceedings*, 15:1067 (1956).
14. Aldes, J. H., Peterson, R. D., and West, E. S.: *Proceedings, 2nd International Cong. of Phys. Med.* (in press).

# Memorial Service\*

CARL E. WENGER, M. D.\*\*

Mr. President, Families, and Friends of deceased members of our society:

It is our purpose in this short hour to venerate the memory of men who have successfully fulfilled their solemn promise to minister to the physical and spiritual needs of all men, without thought for personal comfort or gain. Men will little note or long remember what we say or do in this hour. It is the unfading memory of countless deeds of selfless service which stands as a monument more durable and tangible than bronze or stone to the devotion of these, our peers, to the art and science of medicine.

Our consciousness of the loss sustained by their departure from this sphere is real indeed. All who knew them will miss their counsel and their fellowship. These members of their immediate families have sustained a loss understood only by those who have also been deprived of the physical presence of a companion of many years. Those members of their respective communities to whom they ministered are keenly aware of the loss of a constant source of help in time of physical need or extremity, and of a wise counselor in times of moral or spiritual confusion. Those of us who are privileged to continue the ministry to which they gave their lives must search for other sources of counsel and guidance. Only one who has stepped through the forbidding and never re-traveled vale into the celestial glory beyond can fully understand the transient character of our opportunity to serve mankind. In the light of the brevity and uncertainty of this opportunity is for us, the living, to be acutely aware of the responsibility which is ours. The magnitude of this responsibility may well prompt us to seek the counsel of the great Physician who has promised “. . . If any

man lack wisdom let him ask of God. . . and it shall be given to him.” The sorrow occasioned by the passing from this life of these men is mitigated to a significant degree by a faith that their passage has opened for them vistas of joy and satisfaction even greater than those associated with the giving of themselves in the service of their fellows.

Our faith in the immortality of the soul is a comforting and sustaining force at this time when we are so sorrowfully aware of the mortality of the temporary physical vehicles which are given to us by the God who directs the destinies of men. The preacher, in Eccl. 12, eloquently portrays the progressive failure and final death of these bodies of dust and the joyous destiny of man's immortal soul. “Remember now thy Creator in the days of thy youth, while the evil days come not, nor the years draw nigh, when thou shalt say, I have no pleasure in them; while the sun, or the light, or the moon, or the stars, be not darkened, nor the clouds return after the rain: in the day when the keepers of the house shall tremble, and the strong men shall bow themselves, and the grinders cease because they are few, and those that look out of the windows be darkened, and the doors shall be shut in the streets, when the sound of the grinding is low, and he shall rise up at the voice of the bird, and all the daughters of music shall be brought low; also when they shall be afraid of that which is high, and fears shall be in the way, and the almond tree shall flourish, and the grasshopper shall be a burden, and desire shall fail: because man goeth to his long home, and the mourners go about the streets: or ever the silver cord be loosed, or the golden bowl be broken, or the pitcher be broken at the fountain, or the wheel broken at the cistern. Then shall the dust return to the earth as it was, and the spirit shall return unto God who gave it.”

\*Presented at Memorial Service, 81st Annual Meeting of the Arkansas State Medical Society, April 25, 1957, Little Rock, Ark.

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# ◆ *What's* NEW ◆

## OBSTETRICS

ROBERT W. ROSS, M. D.\*

Obstetrics is thought by many to be the most stagnant field in medicine. It is felt that nothing new ever happens and that it is a "real bed of roses." These statements are far from any truth. We are constantly striving for and achieving a lower fetal and maternal mortality. We are improving our antenatal care — we are conducting our labors and deliveries with better and safer analgesics and anesthetics — we are having more normal puerperiums — and, finally, we are getting healthier mothers and babies. If one does obstetrics long enough he will find that the "bed of roses" is padded with many obstetrical emergencies, such as sudden, severe, hemorrhages, shocks of every description, diseases of the parturient mother of every kind, difficult deliveries due to abnormal presentations, etc.

Antenatal care has been and will continue to be the most important phase in the management of the pregnant woman. It is here that the patient is routinely examined and preventative medicine is practiced. A small amount of time in talking with the patient will dispel many of the natural fears of pregnancy. In the modern obstetrical office of today the initial prenatal visit should include:

1. The general physical examination;
2. Blood typing and RH factor determination;
3. Chest film;
4. C.B.C. and urinalysis;
5. Consultation to begin the establishment of the proper rapport between the patient and her physician.

The subsequent prenatal visits should include weight determinations, urinalysis and hemoglobin determination, blood

pressure, fetal heart tones, size of the uterus, and consultations.

One notable advancement in the field of preventive medicine in the antenatal care of the pregnant woman was the introduction of the Salk Vaccine. This is available through local health units for free distribution to pregnant women. The series of three injections should be given to every pregnant woman. In all of the available literature there has been no untoward effects or side reactions of the vaccine to pregnant women.

Erythroblastosis Fetalis or Hemolytic Disease confronts the obstetrician and pediatrician not infrequently. From the obstetrical standpoint, little advancement has been made in treating this disease, but with a better understanding of the pathological processes within the child and subsequently the perfection and timing of exchange transfusion, an increasing number of these infants are being saved. The ideal of any treatment, however, prevention is far from being reached.

It should be a routine procedure in the modern obstetrical office to determine the RH factor of the expectant mother. If this factor is found to be negative the father's RH should be determined. If an RH incompatibility exists between the expected parents the situation should be explained to them. Many articles have been written in the various lay magazines about this problem and it is frightening to the prospective parents. A booklet entitled "What it means to be RH Negative" has been prepared by the Philadelphia Serum Exchange, 1740 Bambridge Street, Philadelphia, Pennsylvania, and is an excellent booklet to give to these patients.

Frequently the pregnant woman is

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faced with exposure to Rubella in the first trimester of pregnancy. I feel strongly that Gamma Globulin should be given to these patients. This is an expensive drug, but this also can be obtained at the various local health agencies. This literature is in agreement that numerous abnormalities of the fetus may result if the mother has contracted Rubella or some other virus type disease in this trimester of pregnancy. A therapeutic abortion is justified, if the patient contracts the disease in the first trimester of pregnancy. The decision is made by the prospective parents.

The increasing use of the chest X-ray surveys has brought to light statistics that could have been predicted. Most surveys of parturient women reveal an incidence of 1 to 1½ per cent of clinically significant tuberculous disease. It is imperative, therefore, that a chest X-ray be taken at the first antepartum examination. Because unsuspected tuberculosis in the pregnant woman is not uncommon and is most likely to be detected through routine X-ray study, the obstetrician is the first to be called on to evaluate any detected lesions. By far the best results have been obtained by the cooperation of the obstetrician and internist. Immediate and intensive clinical study of the pulmonary lesion should include adequate bacteriologic examinations, special X-ray studies, including previous roentgenograms, an adequate history, physical examination, and proper skin tests. With active pulmonary disease the decision regarding therapeutic abortion should be reached within the first 12 weeks of pregnancy. Abortion should not be substituted for proper treatment of the disease; the need for it has been greatly reduced by antimicrobial agents, collapse therapy, and surgical resection. Termination of pregnancy may be considered when the tuberculous process fails to respond to intensive and adequate therapy, when the history indicates breakdown of a pulmonary lesion following a previous pregnancy despite adequate treatment or when the pregnancy may interfere with appropriate treatment of the tuberculosis. A tuberculous process requires adequate treatment even though pregnancy is terminated.

Cesarean section should be done only for obstetric reasons. Even though some tuberculous women come through pregnancy and labor without flare-ups a breakdown in their pulmonary condition may occur at a later date. Any change due to parturition should become evident within three months after delivery. Later exacerbations are probably due to many household duties, neglect of rest and diet, and worry. Raising a baby may result in more stress than bearing a baby.

Mitral Commissurotomy offers added hope to women who have feared having children because of mitral stenosis, and offers greater assurance of safety retaining of pregnancy in cases in which therapeutic abortion and sterilization might otherwise be recommended. The operation is safe in the pregnant patient, and exploration of the valve at commissurotomy gives additional, highly valuable information concerning the risk of continued pregnancy and the advisability of future pregnancy.

There has been a tremendous increase in the number of elective inductions of labor. Induction should be reserved for those patients in whom there is a well-founded indication for terminating the pregnancy and should not be considered simply because it might be easier or more desirable for the delivery to take place at a certain time. The convenience of elective induction of labor has led to its widespread use, both by skilful obstetricians in well-equipped and well-staffed institutions, and by others less able and willing to select patients suitable for the procedure. The reported excellent results of the former, however, are not typical of the increased morbidity and mortality occurring in those patients in whom attempts are made to induce labor in the face of contraindications to the procedure.

Certain conditions such as eclampsia, preeclampsia, and chronic hypertension often can be controlled only by delivery. If the severity of the condition continues to increase, in spite of adequate medical treatment, induction may be used. Certain bleeding complications of pregnancy, such as placenta praevia, and abruption placenta, may make delivery



necessary, and if there are no contraindications to induction of labor and to vaginal delivery, cesarean section can be avoided.

Elective inductions are justifiable in multipara with previous short labors and for those patients who live a considerable distance from the hospital and whose means of transportation is unreliable.

Certain criteria should be fulfilled before induction of labor is carried out in this manner. The criteria includes:

1. There should be no cephalo-pelvic disproportion;
2. The cervix should be "ripe"; that is, soft, dilated, or dilatable;
3. The presenting part should be well engaged.

Numerous methods of alleviating pain during labor and delivery have been used.

There are advocates of the Reid method of natural child birth. Occasionally a patient desires this type of delivery and they are successful in their efforts.

The most commonly practiced method of analgesia in our area is a modified twilight sleep, thorazine is given intramuscularly and this is followed by varying amounts of intravenous demoral and scopolamine. Each patient is individualized and given the amount of drug that is required. This method of analgesic in conjunction with intravenous Pitocin induction produces a smooth and painless labor. For the actual delivery, inhalation anesthetic may or may not be given. It is important that the patient receive oxygen either by inhalation or through the nasal route during the delivery. Pitocin (1:500) in glucose is administered intravenously for induction of labor. This must be started by a physician and he should remain with the patient as long as she is receiving the infusion. The drug is valuable but must be used with scrupulous care because its use can result in rupture of the uterus, cerebral damage to the infant and anaphylactic reactions, convulsions and death of mother and infant. If uterine contractions which follow its injection become too violent, too prolonged or cause a change in the fetal heart tones, ether or chloroform should be administered for a few minutes to counter-

act the effect and to relax the uterus. No further injections of pitocin should be given. The fetal heart tones should be watched closely throughout labor. Pitocin induction is contraindicated under the following circumstances:

1. Threatened rupture of the uterus because of mechanical blocking or extreme thinning of the lower uterine segment.
2. In malpresentations, such as transverse.
3. In a test of labor after a previous cesarean section.
4. Placenta praevia and abruption placenta if cervix is thick and undilated and presenting part unengaged.
5. In certain severe toxemias.
6. Grand multipara because of the great danger of rupture of uterus.

Regional anesthetics such as caudal, spinal, and pudendal blocks are still excellent. In premature labors for maximum protection to the infant regional anesthetic is probably the best.

Hypnosis is in its infancy as far as obstetrics is concerned, but in the future it will probably play an important part in this everchanging field of obstetrics.

Numerous methods of X-ray pelvimetry are available for us to use. The interpretation of the films predicts through the pattern of the pelvis many obvious and borderline pitfalls. It may predict difficult mid-forceps type of deliveries which would be better treated by laprotrachpotomy. It may aid you in choosing various types of forceps and indicate when instigation of rotation may be hazardous. In the case of breech we can recognize dystocia prior to its development and its often tragic conclusion. This has effected a marked reduction in the mortality by doing early cesarean sections. X-ray pelvimetry is merely a better and more accurate method of obtaining pelvic measurements, classifying the pelvis, and determining cephalo-pelvic disproportion at term.

There has been an increase in the cesarean section rate throughout the various medical centers. The incidence is variable, but on most large obstetrical services about four per cent of all deliveries

are accomplished by cesarean section. Delivery by cesarean section is not the answer to all obstetric complications, and because both primary and remote mortality rates are higher than for vaginal delivery, its use must be limited to those patients in whom a reasonable indication for the procedure and no definite contra-indication against it exists.

The most common indications for cesarean section are:

1. Previous cesarean section.
2. Pelvic contractions.
3. Placenta praevia.
4. Uterine inertia.
5. Malpresentations.
6. Abruptio placenta.

A problem not infrequently encountered is the prevention and inhibition of postpartum lactation.

No method yet reported for suppression of lactation in the postpartum patient has proved entirely satisfactory. Estrogens, alone, over the years, have given variable and far less than satisfactory results. Estrogen-Androgen combi-

nations have been effectively used to prevent the initial painful breast engorgement. The introduction of chlorotrianisene (TACE) offered an oral estrogenic substance which is stored in fat tissues of the body and due to its slow release into the blood stream, allows prolonged action and a more gradual reduction in blood estrogen levels. The usual dosage of this drug is two 12 mg. capsules three times daily for ten days. This is started in the immediate postpartum period. Diethylstilbestrol and other estrogenic substances, when given in adequate dosage over a sufficient period of time, can adequately suppress lactation in the majority of patients. When used in this manner, the most serious undesirable side effect of therapy — withdrawal bleeding — is believed due to the short duration of action and sudden lowering of blood estrogen levels.

Another method for suppression of lactation is the use of large amounts of androgen (100 mg. intramuscularly) daily for three days. No side effects have been noted from this form of therapy.



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## The Biochemical and Clinical Features of Alkalosis and Hypopotassemia

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### DEFINITION

Alkalosis may be defined as an abnormal biochemical state resulting from an accumulation in the body of an excess of base or a deficit of acid. The latter state, that is, the loss of chloride by vomiting or gastric suction, or the loss of carbon dioxide by hyperventilation, is the more common. The bicarbonate of the blood is increased with the exception of severe hyperventilation. Its hydrogen ion concentration is usually diminished. Alkalosis may be subdivided into compensated and uncompensated metabolic alkalosis and compensated and uncompensated respiratory alkalosis. It is of clinical interest and importance to note that metabolic alkalosis cannot be differentiated from respiratory acidosis by the determination of the carbon dioxide power of the blood and of plasma chloride. In both instances the former value is elevated and the latter decreased (1). The differentiation must be made clinically or by measurement of the blood pH. Ammonium chloride, advocated by some in the therapy of metabolic alkalosis, is absolutely contraindicated in the therapy of respiratory acidosis.

### MAINTENANCE OF NORMAL PH OF BLOOD

Changes in the acid-base equilibrium may be defined as deviations from normal in the reaction or pH of the blood. The pH of body fluids is rigidly maintained at 7.4 in health by three mechanisms:

- 1) The buffer systems of the blood and intracellular buffer systems.
- 2) Excretion of carbon dioxide by the lungs.

- 3) Base conservation by the kidney with the excretion of fixed acids.

The most important buffer pair in the body fluids is the carbonic acid-bicarbonate system. The pH of the blood is determined by the ratio of the carbonic acid to the bicarbonate of the plasma. At pH 7.4 the ratio is 1:20 and for extracellular fluids this is provided for by 1.35 meq-liter of carbonic acid and 27 meq-liter of bicarbonate. These values are frequently given as 3 volumes per cent and 60 volumes per cent. Preservation of the ratio of 1:20 is all that is required to maintain the normal blood pH of 7.4. It is not necessary to sustain fixed values for carbonic acid and bicarbonate to provide this pH. The buffering effect of the plasma proteins, phosphates and hemoglobin and intracellular buffers will not be discussed at this time.

In a basal state in health, pulmonary ventilation provides for complete arterial oxygen saturation and a partial pressure of carbon dioxide of 40 millimeters of mercury in the arterial blood which is in equilibrium with the alveolar air at a blood pH of 7.4. The three factors which regulate pulmonary ventilation are: partial pressure of oxygen, partial pressure of carbon dioxide, and blood pH (2). With a drop in  $pO_2$  the chemoreceptors in the aortic body and carotid artery are stimulated and produce stimulation of the respiratory center. If the  $pCO_2$  drops to 30 millimeters mercury, ventilation is inhibited and if it increases to 50 millimeters mercury pulmonary ventilation increases fourfold. At a blood pH of 7.20 ventilation is increased three to fourfold, and at a pH of 7.50 it is inhibited. It can be noted, therefore, that compensa-

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tion for metabolic alkalosis involves inhibition of pulmonary ventilation with increase in  $p\text{CO}_2$ , and compensation for metabolic acidosis is characterized by increased pulmonary ventilation with decrease in  $p\text{CO}_2$  (Kussmaul's breathing).

The concentration of bicarbonate in the serum is dependent on the amount of cations available to form bicarbonate at the particular carbon dioxide tension and with the particular amount of blood electrolyte present. The cation concentration available to form bicarbonate is regulated by the kidneys. Cations available to form bicarbonate may be considered as the algebraic sum of total plasma cations minus the plasma anions, excluding plasma bicarbonate. For many purposes, the change in cation available to form bicarbonate may be defined as the balance of sodium plus potassium minus chloride. The kidney conserves cation concentration by the following three mechanisms:

- 1) Practically complete reabsorption of all the filtered sodium bicarbonate.
- 2) Acidification of the urinary buffer salts.
- 3) Excretion of fixed anions in combination with the ammonium ion rather than with sodium.

The experimental studies of Pitts (3), Berliner (4), and Gilman (5) indicate that these cation conservation mechanisms occur through a hydrogen ion-sodium ion exchange. In experimental ammonium chloride acidosis in man larger amounts of titrable acid appear in the urine than can be accounted for if all the acid components of the glomerular filtrate were excreted. Hydrogen ions must therefore have been added to the urine by the renal tubular cells. Studies with carbonic anhydrase inhibitors (diamox) indicate that the source of the hydrogen ion is carbonic acid which is formed by the hydration of carbon dioxide. This reaction is accelerated by carbonic anhydrase. Inhibition of carbonic anhydrase causes a decreased titrable acidity of urine with a retention of hydrogen ions and acidosis. There is increased urinary excretion of sodium, potassium, and bicarbonate.

Evidence that bicarbonate reabsorption by the kidney depends on the exchange of hydrogen ion made available from the hydration of carbon dioxide has been furnished by two independent studies (6, 7). By altering the partial pressure of carbon dioxide and hence the concentration of carbonic acid in body fluids, the amount of bicarbonate reabsorbed by the kidney can be markedly changed. In respiratory alkalosis with a low  $p\text{CO}_2$ , bicarbonate reabsorption is diminished and more bicarbonate and cation are excreted. The urine is alkaline. In respiratory acidosis, however, although the plasma bicarbonate is high the  $p\text{CO}_2$  is likewise elevated. Bicarbonate reabsorption is greatly enhanced, and the urine is acid. In metabolic alkalosis, on the other hand, the plasma bicarbonate is elevated as may also be the  $p\text{CO}_2$ . Despite this the urine in metabolic alkalosis may be acid. The reason for this has not yet been delineated.

## PATHOLOGIC PHYSIOLOGY

The previous concept of the physiology of body fluids was dominated by two postulates which are now known to be erroneous:

- 1) Cellular membranes were regarded as being impervious to sodium and potassium.
- 2) Only alterations in extracellular fluids were thought to be readily accessible to fluid therapy.

Thus until recently alkalosis accompanying vomiting was thought to be associated with the balance of bicarbonate and chloride in the extracellular fluids and little significance was attached to changes of the other electrolytes and to the ionic constitution of the cells themselves. Recently the reports of Butler (8), Fenn (9) and Darrow (10) and others have called attention to the alterations in the intracellular as well as extracellular fluid which occurs during alkalosis and acidosis. Clinical and experimental studies indicate that a deficit of potassium is frequently associated with metabolic alkalosis. Potassium deficit produced in rats by diets low in potassium plus the administration of desoxycorticosterone acetate has been demonstrated by Darrow to be associated with a high serum bicarbo-



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nate and the intracellular composition of sodium and potassium is altered. The greater the potassium deficit the higher is the intracellular sodium. Alkalosis was present in these rats as indicated by a high blood pH, a high plasma bicarbonate, and a depressed plasma chloride. All of these findings developed after several days of potassium depletion. Balance studies indicated that three ions of intracellular potassium had been replaced by two ions of sodium and one ion of hydrogen. This relationship of high serum bicarbonate and low serum chloride to potassium deficit has also been noted in patients. The relationship may not be maintained in dehydration. Patients with dehydration accompanied by potassium deficit may be expected, however, to develop alkalosis when they are treated solely with sodium and chloride.

#### PRODUCTION OF POTASSIUM DEFICIT

Since potassium depletion is of pathogenetic significance in the development of metabolic alkalosis, a discussion of potassium deficit is important. The factors responsible for potassium deficit may be outlined as follows (11):

- 1) Obligatory excretion in the presence of diminished intake.
  - a. Urinary excretion accelerated by dehydration and tissue trauma.
- 2) Obligatory urinary excretion plus abnormal gastrointestinal loss.
  - a. Postoperative patients with or without gastric suction treated with parenteral potassium-free fluids.
  - b. Vomiting and diarrhea.
  - c. Intestinal fistulae.
  - d. Steatorrhea.
- 3) Increase in adrenal corticosteroids.
  - a. Patients treated with ACTH and corticosteroids.
  - b. Cushing's syndrome.
  - c. Overtreated Addison's disease.
  - d. Primary aldosteronism.
- 4) Diabetic Coma.
  - a. Early in diabetic coma and prior to treatment the urinary loss of potassium does not keep pace with the shift of potassium from the cell into the extracellular fluid nor

with the contraction of the extracellular fluid volume. The serum potassium is usually normal or elevated in the face of an intracellular deficit. This may also be noted in other states of dehydration associated with potassium depletion.

- b. After treatment, the expansion of the extracellular fluid volume and potassium uptake by the cells are associated with a sharp drop in serum potassium.

#### CLINICAL SIGNIFICANCE OF POTASSIUM DEFICIT

Flaccid paralysis, with sparing of the cranial nerves, and respiratory paralysis may occur in hypokassemic states but are rare. Muscle weakness, abdominal distention with intestinal ileus, and hypotension are common. Experimentally, myocardial necrosis has been noted in animals. Death may occur with the heart stopping in diastole. The electrocardiogram may show depressed or inverted, broadened T waves, prolonged QT interval, and depression of the ST segment. These changes may not be present even when marked hypokassemia is present. The renal tubules show areas of hydropic degeneration and small areas of tubular necrosis.

#### DIAGNOSIS OF POTASSIUM DEFICIT

Since potassium deficit may not be associated with any characteristic clinical picture, recognition of the disease which leads to its development is of utmost importance. Any disease state in which inadequate intake of potassium occurs may present the problem of potassium depletion since potassium conservation of the kidney may be poor even in the presence of potassium deficit. A low serum potassium almost always indicates cellular deficit. A normal or high serum potassium may exist with a cellular deficit of the ion. Because of the association previously noted, a high serum bicarbonate and low plasma chloride, otherwise unexplained (for example, by respiratory acidosis in pulmonary emphysema), should always lead to the suspicion of hypokassemia.

#### Types of Alkalosis

- 1) Metabolic alkalosis.

- 2) Respiratory alkalosis.
- 3) Alkalosis of Cushing's syndrome.
- 4) Congenital alkalosis of the newborn.

## METABOLIC ALKALOSIS

The etiology of this type of alkalosis has been previously discussed. The syndrome may be characterized by apathy, lethargy, muscular weakness, abdominal distention and ileus, cardiac arrhythmias, and renal insufficiency. In more severe cases there may be confusion, delirium, muscular twitchings, tetany but rarely convulsions, fever, tachycardia, slow, shallow respirations, weakness, coma, and death. It is now known that some of these symptoms may occur with hypopotassemia in the absence of alkalosis.

Eliel and co-workers (12) describe the following findings in 32 post-operative patients with metabolic alkalosis:

- 1) Hypopotassemia, hypochloremia and elevated serum bicarbonate.
- 2) Electrocardiographic changes consistent with potassium deficit.
- 3) Extensive expansion of the radiosodium space beyond the confines of the bromide space suggesting that sodium had migrated into the cells to replace potassium.
- 4) Lowering of potassium and increase of sodium in the red cell.
- 5) Prompt reversal of the clinical and biochemical abnormalities upon the administration of adequate potassium.

Burnett and his associates (13) stress the character of the multiple abnormalities of water and electrolyte metabolism that occur in patients with metabolic alkalosis associated with the loss of gastric contents. Gastric contents contain both sodium and chloride but chloride loss exceeds sodium loss. Inadequate renal conservation of sodium, potassium, and chloride occurs despite a marked depletion of these ions in the extracellular fluid. The resultant clinical syndrome includes dehydration, high serum carbon dioxide content, hypochloremia, hyponatremia, hypopotassemia, and azotemia.

## PRIMARY ALDOSTERONISM

Primary aldosteronism is a new disease entity recently described by Conn and Louis (14). The chief clinical mani-

festations are periodic muscle weakness, intermittent tetany and paresthesias, polyuria, polydipsia, and hypertension. Edema is not present. Laboratory studies reveal a low serum potassium, high serum sodium and metabolic alkalosis. The urine is alkaline, is of a low fixed specific gravity, and contains small amounts of protein. The disease is caused by an adrenocortical adenoma which secretes excessive amounts of aldosterone. There is no disturbance of glucocorticoid metabolism. The disease may be cured by surgical removal of the adenoma.

## RESPIRATORY ALKALOSIS

The syndrome of hyperventilation is one of the most common and yet one of the most infrequently recognized medical disorders. It results from excessive loss of alveolar carbon dioxide caused by increased pulmonary ventilation. The syndrome may be produced by hyperventilation such as occurs during exercise, fever, or a disturbance in the respiratory center as a result of encephalitis, brain tumors, or the administration of salicylates. Hyperventilation may also occur in hysteria, in cardiac failure as a result of hypoxia, and at high altitudes. By reduction of the partial pressure of the alveolar carbon dioxide from the usual value of 40 millimeters of mercury to less than one-half that value respiratory alkalosis is induced in the body. The increased alkalinity of the blood is responsible for the symptoms of the syndrome. Anxiety, giddiness, confusion, and vague, dull precordial pain may be noted early. With further hyperventilation, the patient notes sensations of numbness and tingling of the face and extremities and may become alarmed over the seeming imminence of some dire event. Many patients may proceed to a tetanic state in which carpopedal spasm, associated at times with stupor, occurs.

In respiratory alkalosis the serum bicarbonate may be reduced fairly rapidly, but as long as the disturbance in respiration persists, the blood pH remains normal or elevated. However, after the kidneys have produced the reduction in available bicarbonate, the respiratory center may recover and respond normally. There will then be an excess of carbon dioxide relative to bicarbonate, and a true



state of metabolic acidosis will be present during the recovery phase.

#### ALKALOSIS OF CUSHING'S SYNDROME

In 1937 McQuarrie (15) reported a classical case of Cushing's syndrome with hypopotassemic, hypochloremic alkalosis. The serum sodium was elevated and magnesium, calcium, phosphate and protein were slightly reduced. The alkalosis did not respond to large amounts of sodium chloride, up to 40 grams daily, but it did respond to 10 grams of potassium chloride daily for five days. The serum electrolyte pattern was restored to normal except for a slightly elevated serum bicarbonate. As is to be expected, a similar electrolyte pattern occurs in patients treated with ACTH or corticosteroids while such patients are on an inadequate potassium intake.

Willson and colleagues (16) reported a case of Cushing's syndrome with similar electrolyte abnormalities. They demonstrated that ammonium chloride alone was ineffective in correcting the alkalosis and also caused further negative potassium balance by increasing potassium diuresis. The author's data indicate that there was a considerable depletion of intracellular potassium.

#### CONGENITAL ALKALOSIS WITH DIARRHEA

Gamble (17) and Darrow (18) each reported a case of this disease in 1945. The characteristic feature of the disease is a profuse, watery diarrhea leading to a loss of more chloride than sodium in the stools and resulting in a severe alkalosis. Potassium deficit develops. The disease presumably represents a peculiar defect in the absorption of water and electrolytes, especially chloride, from the intestinal tract. Darrow presents metabolic balance data which demonstrate the shift of sodium from the extracellular to the intracellular phase.

#### THE EFFECTS OF ALKALOSIS

The complex disturbance of water and electrolyte balance in alkalosis undoubtedly gives rise to numerous signs and symptoms, the pathogenesis of which are, as yet, not completely understood. The problem is somewhat analogous to that in uremia. For the purpose of clarification,

the effects of alkalosis will be divided into the following:

- 1) Central.
- 2) Peripheral.
- 3) Renal.

#### CENTRAL EFFECTS

Engel, Ferris, and Logan (19) have divided the symptoms of hyperventilation into those related to reduction in consciousness and those related to tetany. Reduction in consciousness was found to correlate well with the degree of slowing of the electroencephalogram and was usually marked when the mean frequency was reduced below 5 per second. Cerebral hypoxia secondary to the alkalosis may play a role in this cerebral dysfunction. In metabolic alkalosis the profound disturbance of water and electrolyte balance must certainly alter cerebral metabolism.

#### PERIPHERAL EFFECTS

Tetany was found to be unrelated to changes in the electroencephalogram and occurred with longer periods of hyperventilation. The numbness and tingling are also peripheral in origin. Although alkalosis is known to reduce calcium ion concentration, the tetany of metabolic and respiratory alkalosis is unrelieved by calcium administration. Tissue hypoxia and increased neuromuscular irritability due to the elevated blood pH are probably the chief etiologic factors.

#### RENAL EFFECTS

That metabolic alkalosis can cause renal dysfunction has been known for many years. Whether metabolic alkalosis, *per se*, can cause permanent renal damage in a patient with previously normal kidneys is controversial. A review of the literature, however, tends to form the concept that such damage can occur. McGee, Martin, and Levy (20) noted that alkali administration, without the production of alkalosis, lowered the urea clearance by more than 30 per cent in 10 patients. Addis and associates (21) have reported marked microscopic hematuria in rats receiving sodium bicarbonate in the diet. No histological changes were noted in the kidneys. An interesting investigation of the abnormalities in renal func-

tion during metabolic alkalosis has been reported by Burnett and associates. Renal function studies were performed in five male patients with chronic duodenal ulcer and pyloric obstruction. Three of the cases had hypopotassemic, hypochloremic alkalosis. In the other two cases potassium analyses were not done during the phase of alkalosis. None of the patients gave a history of renal disease although one patient gave a history of hypertension of five years duration. All patients had a sustained period of vomiting and in four patients there was a long history of alkali ingestion. The following is the data from two cases:

dehydration, weakness and weight loss. Hypotension and intestinal ileus may be noted. Laboratory studies will reveal a high serum bicarbonate, a low plasma chloride, and a low serum potassium. The serum sodium may be normal or low. Varying degrees of elevation of the blood urea nitrogen will occur. Clinical renal function tests will reveal marked diminution of phenolsulfonthalein excretion and of urea clearance. The urine will be acid in reaction, of a fixed specific gravity of 1.010-1.012, and may contain small amounts of protein. Intense oliguria is uncommon in spite of dehydration and azotemia.

#### Case I, Male, Age 58

DATE	NPN mg. %	CO <sub>2</sub> meq/L.	Cl <sup>-</sup> meq/L.	Na meq/L.	K meq/L.	GF <sup>1</sup>	RPF <sup>2</sup>	Tmpah <sup>3</sup>
5/23/47	105	52	40	115	1.6			
5/28/47	97	44	72	143	2.5	10	54	
10/4/48	29	25		137	4.9	74	249	19

#### Case II, Male, Age 53

10/12/48	100	36	50	119	2.7			
10/15/48	67	23	97	135	3.0	37	153	11
4/9/49	38	26	103	139	4.5	46	237	36

<sup>1</sup>GF = Glomerular filtration rate, normal = 131 cc per minute

<sup>2</sup>RPF = Renal plasma flow, normal = 697 cc per minute

<sup>3</sup>Tmpah = Tubular excretory capacity, normal = 77 mg. per minute

The authors believe that the profoundly altered water and electrolyte metabolism might partially explain the initially severely diminished renal function and that the functional impairment is not unlike that occurring in acute renal insufficiency. These patients differ from those with acute renal insufficiency in that oliguria is not present and recovery is slower and less complete. In case one above, for example, marked impairment of renal function was still present 17 months after the acute episode. It still remains to be definitely determined whether permanent renal damage can be caused by metabolic alkalosis.

In a typical case of metabolic alkalosis with renal insufficiency the history will be one of vomiting of several days duration. Pyloric obstruction or high intestinal obstruction may be present. The patient will present the clinical picture of

With correction of the abnormal water and electrolyte balance by proper fluid administration, the blood urea nitrogen will revert to normal in a few days. Renal function, however, may not return to normal for weeks or months.

#### THE MILK-ALKALI SYNDROME OF RENAL FAILURE (22)

Patients with duodenal ulcer who ingest large amounts of milk and absorbable alkali (such as sodium bicarbonate) may develop calcification of the renal tubules (nephrocalcinosis) and progressive renal failure with death from uremia. Mild to moderate alkalosis occurs but the serum potassium is normal. The serum calcium and phosphorus are elevated, but the urinary calcium is low. The serum alkaline phosphatase is normal. Early diagnosis is absolutely essential since the abnormal serum chemistries and renal dysfunction



are reversible if the excessive milk and alkali ingestion are discontinued.

#### TREATMENT

The average daily diet contains about 90 meq of potassium. In patients who are to be deprived of a normal diet for several days and treated with parenteral fluids the average daily maintenance dose of potassium required will therefore be about 90 meq. Since one gram of potassium chloride contains 13.4 meq of potassium this will require the addition of 7 grams of potassium chloride to the parenteral fluids for maintenance.

Most patients with metabolic alkalosis will have an associated potassium deficit. Howard and Carey have demonstrated that large amounts of sodium chloride or ammonium chloride are not effective in raising serum chloride and lowering serum bicarbonate when potassium deficit is present. The potassium deficit may actually be enhanced by potassium diuresis.

The dosage of potassium required for replacement therapy is empirical since the degree of intracellular potassium deficit can only be determined in retrospect by balance studies. Potassium deficits have been estimated to be 2.4 to 7.9 meq per Kg in diabetic acidosis; 3.8 to 15.6 meq per Kg in gastrointestinal disease with low potassium intake; and 5.8 to 17.3 meq per Kg in infantile diarrhea. In a 60 Kg man in the first two categories this range represents a cellular deficit of 228-936 meq. A daily dose of 120 meq would be expected to replace the deficit in 2 to 8 days. Some of the administered potassium would, of course, be excreted.

Potassium deficit is not always accompanied by low concentrations of serum potassium. In part, Darrow believes that a high or normal serum potassium coexistent with intracellular potassium deficit is dependent upon a release of potassium from cellular stores in response to dehydration, circulatory collapse, and hypoxia. If the serum potassium is normal or high initially in such instances, rehydration over a period of two to four hours is indicated before parenteral potassium therapy is given.

The three following suggestions relative to parenteral potassium therapy have been made:

- 1) Use no fluids with a potassium concentration greater than 80 meq per liter.
- 2) Give the solution no more rapidly than 20 meq per hour.
- 3) Do not try to correct cellular deficits when the serum potassium is high or normal. Rehydration with sodium chloride or glucose solutions is first indicated.

Recommendations for the type of fluid to correct hypopotassemic, hypochloremic alkalosis varies. Darrow recommends a solution containing 50 mm. of potassium chloride and 50 mm. of sodium chloride, that is 2.9 grams of potassium chloride and 3.7 grams of sodium chloride per liter. Potassium chloride may be added to hypotonic or isotonic saline solutions of glucose solutions in a dosage of 60-80 meq per liter.

#### References

1. Gamble, J. L.: *Chemical Anatomy, Physiology and Pathology of Extracellular Fluid*, Harvard Univ. Press, Cambridge, Mass. 1947.
2. Gray, John S.: *Pulmonary Ventilation and its Physiological Regulation*, Charles Thomas, Springfield, 1950.
3. Pitts, R. F.; Lotspeich, W. D.; Schiess, W. A., and Ayer, J. L.: *The Renal Regulation of Acid-Base Balance in Man: I. The Nature of the Mechanism for Acidifying the Urine*, J. Clin. Investigation 27:48, 1948.
4. Berliner, Robert W.; Kennedy, Thomas J., Jr., and Orloff, Jack: *Relationship between Acidification of the Urine and Potassium Metabolism: Effect of Carbonic Anhydrase Inhibition on Potassium Excretion*, Am. J. Med. 11:274, 1951.
5. Gilman, Alfred, and Brazeau, Paul: *The Role of the Kidney in the Regulation of Acid-Base Metabolism*, Am. J. Med. 15:765, 1953.
6. Dorman, P. J.; Sullivan, W. J., and Pitts, R. F.: *Effect of Acute Respiratory Acidosis on Renal Tubular Absorption of Bicarbonate*, Fed. Proc. 12:34, 1953.
7. Brazeau, P., and Gilman, A.: *Effects of CO<sub>2</sub> Tension on Renal Tubular Bicarbonate Reabsorption*, Am. J. Physiol. 175:33, 1953.
8. Butler, A. M.; McKhann, P. F., and Gamble, J. L.: *Intracellular Fluid Loss in Diarrhoeas Disease*, J. Pediat. 111:84, 1933.
9. Fenn, W. O.: *Role of Potassium in Physiologic Processes*, Physiol. Reviews, 20:377, 1940.

## THE FEATURES OF ALKALOSIS AND HYPOPOTASSEMIA

10. Darrow, D. C.; Schwartz, R.; Iannucci, J. F., and Colville, F.: The Relation of Serum Bicarbonate to Muscle Composition, *J. Clin. Investigation* 27:198, 1948.
11. Elkinton, J. R., and Tarail, R.: The Present Status of Potassium Therapy, *Am. J. Med.* 9:200, 1950.
12. Eliel, L. P.; Pearson, O. H., and Rawson, R. W.: Postoperative Potassium Deficit and Metabolic Alkalosis, *New England J. Med.* 243, 471 and 518, 1950.
13. Burnett, C. H.; Burrows, B. A.; Commons, R. R., and Towery, B. T.: Studies of Alkalosis: II. Electrolyte Abnormalities in Alkalosis Resulting from Pyloric Obstruction, *J. Clin. Investigation* 29:175, 1950.
14. Conn, Jerome W. and Louis, Lawrence H.: Primary Aldosteronism, A New Clinical Entity, *Ann. Int. Med.* 44, 1, 1956.
15. McQuarrie, I.; Johnson, R. M., and Ziegler, M. R.: Plasma Electrolyte Disturbance in a Patient with Hypercortico Adrenal Syndrome Contrasted With That Found in Allison's Disease, *Endocrinology* 21:762, 1937.
16. Wilson, D. M.; Power, M. H., and Kepler, E. J.: Alkalosis and Low Plasma Potassium in a Case of Cushing's Syndrome: A Metabolic Study, *J. Clin. Investigation* 19:701, 1940.
17. Gamble, J. L. et al.: Congenital Alkalosis with Diarrhoea, *J. Pediat.* 26:509, 1945.
18. Darrow, D. C.: Congenital Alkalosis with Diarrhoea, *J. Pediat.* 26:519, 1945.
19. Engel, C. L.; Ferris, E. B., and Logan, M.: Hyperventilation, Analysis of Clinical Symptomatology 27:683, 1947.
20. McGee, L. C.; Martin, J. E., and Levy, F.: The Influence of Alkalis on Renal Function, *Am. J. Digestive Diseases* 6:186, 1939.
21. Addis, T.; MacKay, E. M., and MacKay, L. L.: The effect on the Kidney of the Long Continued Administration of Diets Containing an Excess of Certain Food Elements: II. Excess of Acid and Alkali, *J. Biol. Chem.* 71:157, 1926.
22. Burnett, C. J.; Commons, R. R.; Albright, F., and Howard, J. E.: Hypercalcemia without Hypercalcuria or Hypophosphatemia, Calcinosis and Renal Insufficiency, *New England J. Med.* 240:787, 1949.

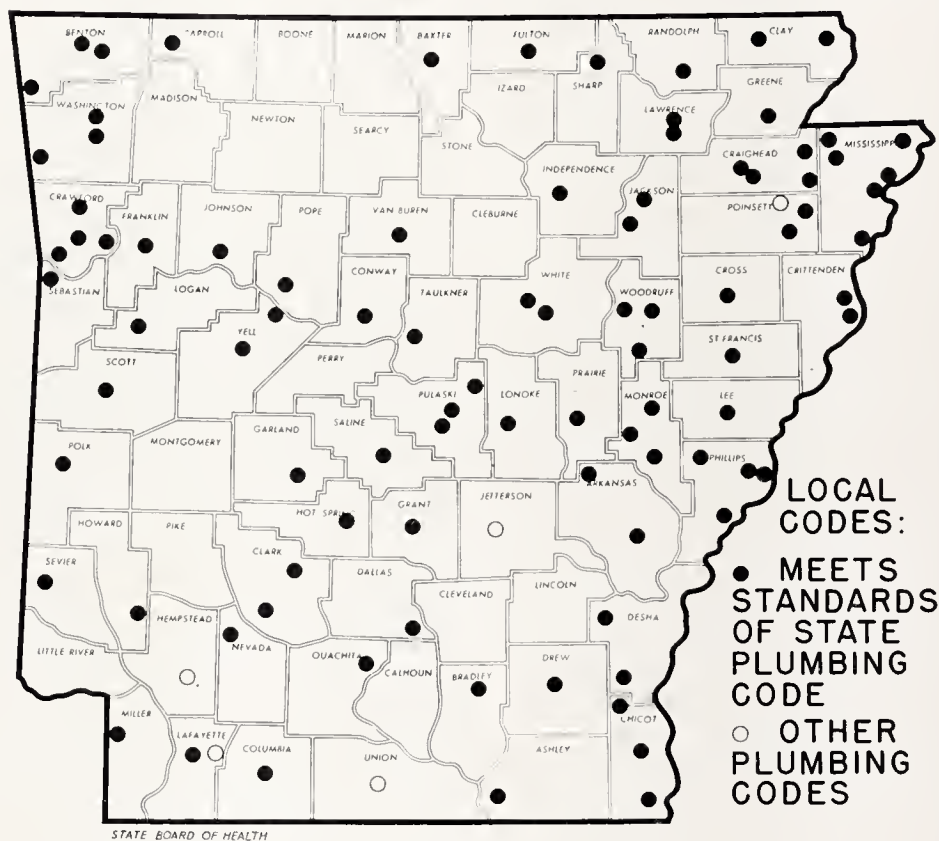


# ARKANSAS PUBLIC HEALTH AT A GLANCE

## PLUMBING CODE

### ARKANSAS COMMUNITY PLUMBING

CODES, JULY, 1957



A plumbing code is a manual of safe plumbing practice to protect the health and safety of the people from dangerous plumbing installations, such as cross-connections, back siphonage and gases formed in the sewers.

Plumbing codes are enforced through:

1. Licensing plumbers to insure that the plumbing work is done by a competent person with enough technical knowledge to install plumbing in a safe sanitary manner.
2. Permits for plumbing work. This insures that community improvements are planned and meet the provisions of the code. Permits also help inspectors to schedule their work.
3. Inspection by an authorized competent plumbing inspector so that there is assurance that the plumbing installation is safe and sanitary.

Arkansas has what is considered one of the best state plumbing programs in the United States. Ninety-nine per cent of the cities over 3,000 population have a good local program. The State Health Department administers a well-rounded licensing program and state-wide plumbing code.

\*Sponsored by the Arkansas State Board of Health.

## Unfortunate Veto

FOUNT RICHARDSON, M. D.

Cancer patients in Arkansas are paying a penalty that neither the Governor nor any man in the legislature wishes them to pay. It happened without design, unless, indeed, it was designed by the Department of Public Welfare to build up more jobs under its control and to put more social service workers on the public purse.

The Arkansas Cancer Commission has been one of the least expensive and at the same time one of the most effective branches of the State government. It is run by having only one paid administrative official. An appropriation of \$50,000 per year from the State of Arkansas has been provided in the past and this has been spent probably with more efficiency and more value return on the dollar than any other agency.

The Commission held clinics, at which all physicians and many lay workers donated their time and skill.

This year the Cancer Commission appropriation was vetoed by the governor with the plan to have the Cancer Clinics which were running on an organized voluntary basis, taken over by the Public Welfare.

With this in mind, the Public Welfare organization put on social workers, appointed an administrator, all paid from

tax funds. These new organizers then sent out speakers to tell the Arkansas Cancer Commission how to cut the cake, how many copies to forward to Little Rock and relieved the Commission and the physician, who were donating their services to the Commission, of the authority of deciding where and when a patient would go for treatment. The new group also decides where the patient would be treated. This, of course, without any regard for the desires of the sick patient who can take it or leave it.

Since the direction of the whole affair is now in the hands of paid lay people it is doubtful if physicians can be expected to continue their interest and support. Before a patient can be hospitalized he must be investigated by a State social worker and this worker decides whether or not the patient can be hospitalized.

It is hoped that the governor can find the funds from some other source to allow the Cancer Commission to continue to work for mercy without interference from the Public Welfare Department. The Clinics, as constituted, worked without friction to the satisfaction of the physicians everywhere in the state. It was a mutually co-operative service of volunteers who served effectively for the entire state. It will be too bad to turn it over to State-paid employees who can only add discord, incompetency, and expense.



## Medicine in the News

### New Hospital in Stuttgart

Sunday, July 28, 1957, Stuttgart citizens presented in dedication and open-house what is described as one of the finest hospitals of its kind in the nation. Officially licensed as a 38 bed unit, the hospital will open with 30 beds and 15 bassinets. The total cost of the project, including construction of the building and equipment, is approximately \$500,000.

### Hazards of Injection Therapy As a First Aid Measure After Electrical Shock

A renewed warning has been made concerning the hazards of injection stimulants as a first aid measure after accidental electrical shock. Most stimulants of the respiratory tract fail to be of any value following accidental electrical shock; the best therapy for respiratory failure is oxygen and artificial respiration. Also to be avoided in these circumstances is the intracardiac injection of Adrenalin and other cardiac stimulants as a first aid measure; these substances may be given in the hospital where other resuscitative equipment is available.

### 'Weight-Reducing' Medicines Under Congressional Attack

"Weight-reducing" medicine for sale over-the-counter at drug stores are under attack at a House subcommittee hearing, which to date has produced no testimony in defense of these products. It is a subcommittee of the House Government Operations Committee, under chairmanship of Rep. John Blatnik (D., Minn.) which is attempting to show that advertising claims for the preparations are in many cases misleading and fraudulent.

Dr. S. William Kalb of Newark, N. J., stressed that weight could be reduced only by cutting the caloric intake to the point where less was being eaten than the body was using up. The products at issue, he said, were at best an aid or "crutch" to the over-weight person, and at worse represented a danger by possibly

introducing drugs or other substances that might be injurious to the particular patient. His solution would be to remove all such products from over-the-counter status, restricting their sale to physicians' prescriptions. In effect this would end their use in most cases because physicians wouldn't prescribe them, in his opinion.

### Dr. Otis L. Anderson Gets New PHS Post

Dr. Otis L. Anderson, for five years chief of the PHS bureau of state services, on October 1 will take over a newly-created post of assistant surgeon general of Public Health Service for personnel and training. Operating in the immediate office of Surgeon General Burney, he will be responsible for all matters relating to personnel and training, including liaison with outside organizations and associations and with colleges and universities on activities in this field.

### AMA Jointly Sponsors Meeting on Radio and TV

Representatives of medical societies, radio and television stations, voluntary health organizations, medical schools and allied groups will be invited to attend a national conference on "How to Use Local Television and Radio in the Health Field" November 7-8 at Chicago's Hotel Sheraton-Blackstone. The two-day conference is being sponsored jointly by the American Medical Association and the National Association of Radio and Television Broadcasters.

### Social Security Office Reminds Disabled on Freeze Provisions

Social Security Administration officials believe many disabled persons still have not applied for their rights under the "freeze" provision of the social security amendments. Accordingly, it is calling public attention to the recent signing of a law by the President. It extends for another year (to June 30, 1958) the time in which a person severely disabled before January 1, 1955, can file for a drop-out of those years in which they were not wage earners and still get increased benefits.

### **Hearings: U. S.-State Relations, Commission for the Blind**

A House subcommittee has started an investigation of federal-state relations, linking its work closely to that of the Kestnbaum commission that studied the same subject at the request of President Eisenhower. One of the subjects to be looked into will be the Hill-Burton grants to aid in construction of hospitals. At issue is state responsibility. A key question is whether the federal government should attempt to withdraw from certain areas of taxation and at the same time drop federal programs, to allow states to assume the responsibility and finance the costs out of tax sources previously monopolized by the federal government.

Meyer Kestnbaum, now a White House assistant, was one of the first witnesses. He emphasized it would not be easy to hold down federal activity. Witnesses were in general agreement that many states declined to assume responsibilities, because their legislatures were dominated by rural members. Other witnesses represented the U. S. Chamber of Commerce, county and municipal associations and labor unions.

### **AMA Plans School Health Conference This Fall**

"A Decade of Progress in Fitness" will be the theme of the sixth National Conference on Physicians and Schools to be held Oct. 30 to Nov. 2, at the Moraine-on-the-Lake Hotel, Highland Park, Ill. Sponsored by the AMA's Bureau of Health Education, this year's program will emphasize a continuing interest in the health and all-around fitness of children and youth.

### **AFL-CIO To Fight Medical Society Actions**

A firm stand against the actions of medical societies who fail to go along with union labor medical programs has been agreed upon by the AFL-CIO committee on social security according to the "Summer Newsletter" recently issued by the Association of Labor Health Administrators. The ALHA is a group of medical directors, lay administrators, and other

representatives of union health center plans.

The publication calls for action in opposing the "attack and harassment of component medical societies against union plans, particularly in the states of Pennsylvania, Illinois and Colorado." It states that at a meeting on May 15 in Washington, D. C. "at the merged headquarters," the AFL-CIO executive committee approved funds to encourage and promote the work of the ALHA in providing "technical aid to the trade union groups in development of better health service programs for the benefit of workers and their families." The letter also stated that the association "will stand ready to bring experienced technical and legal counsel on request to the defense of the victims of any efforts on the part of medical power groups to destroy programs which endeavor to improve the quality and scope of prepaid health services available to working people and their families." The work will be carried out in cooperation with AFL-CIO through its department of social security.

The Newsletter used terms such as "medical power groups," "fee-minded physicians" and "monopolistic elements of organized medicine" in referring to the recent actions taken by medical societies in Pennsylvania, Illinois and Colorado.

Dr. Warren Draper's defense of the UMWA position opposing the "Suggested Guides to Relationships Between Medical Societies of the UMWA" was mentioned. These guides were adopted by the House of Delegates at its recent New York meeting.

### **AMEF Spearheads Fall Campaign**

The American Medical Education Foundation will launch an intensive fall campaign for contributions to the nation's medical schools. October and November have been selected as the months in which to appeal to physicians for individual donations.

To assist local committees the AMEF has prepared a new pocket portfolio with information cards and pledge envelopes. A new folder entitled "So They May Serve" has also been produced for use in local and state mailings.



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## **Faster Controls Sought on Cigarette Filter Advertising**

A House subcommittee has ended its public hearings on filter cigarettes, but the issue is far from closed. During the six days of hearings, the subcommittee attempted to establish that advertising used to promote filter cigarette sales in many cases is misleading or fraudulent. Through its report on the hearings and recommendations to other committees, the subcommittee is expected to:

1. Ask more money and personnel for the Federal Trade Commission so it can do a more effective job of policing cigarette ads.

2. Ask that the law be amended so FTC can ask federal courts for immediately effective injunctions against questionable ad slogans; under present law, the injunction sought does not become effective until all legal processes have been completed, which may take four years or more.

## **Government Surplus Valued at \$62 Million Given to States**

Surplus property for which the federal government paid \$62,360,609 was distributed to the states during April, May and June for public health, educational and civil defense purposes. HEW Secretary Folsom reported this to Congress July 31, as required by law. Real property amounted to \$1,412,120 and personal property to \$60,948,489. Transferred property included such things as hospital building sites, hospital furniture and laboratory equipment. Regional offices of HEW and various state agencies channel the surplus property to institutions.

## **VA Increasing Fees to Physicians In Home-Town Care Program**

Veterans Administration is increasing fees to physicians under the home-town care program, and during the current fiscal year will spend in excess of half a million dollars more on this operation. VA already has reached agreement on the new schedules with medical societies or intermediary organizations in California, Colorado, Connecticut, Indiana, Maine, Massachusetts, New Jersey, Ohio, Oregon, Virginia, and Washington. Still under negotiation are fee schedules for Arkansas, Florida, Georgia, Idaho, Pennsylvania, South Dakota, Alaska and Hawaii.

## **PHS Names Consultant on Radiation Effects**

The Public Health Service has appointed a special consultant on the public health aspects of radiation, who will serve as principal advisor to the surgeon general. Dr. Russell H. Morgan, radiologist-in-chief at Johns Hopkins University Hospital and professor of radiology at Johns Hopkins, was named this week by Surgeon General Burney.

## **Funds Awarded for Research And Sewage Plant Construction**

Although the funds have been available for only six weeks, Public Health Service already has granted most of this year's money appropriated for two programs, to aid in expanding medical research facilities and to help in construction of sewage plants.

## **Auto Safety Belts Receive Wide Indorsement at Hearing**

With one exception, witnesses appearing before the Traffic Safety Subcommittee of the House Interstate and Foreign Commerce Committee testified they favor automobile safety belts. Indorsing the device were spokesmen for industry, Air Force, Public Health Service and American College of Surgeons.

## **Scientific Panel Discusses Problem of Food Additives**

For two days a panel of 15 scientists discussed problems of food additives be-

fore the Health subcommittee of the House Interstate and Foreign Commerce Committee. Among the major points they brought out:

**Usefulness of Additives**—There are certain technical justifications for them; they reduce waste, make foods more attractive to consumers, often aid the manufacturer in processing and shipment, they should not disguise a product or deceive the consumer, or reduce nutritional values in any important manner.

**Safety Precautions**—Any chemical handed to public for any use whatever should be pre-tested. Every additive is different and requires own testing. If prospective market is small, expensive testing not in order, but product then not given general release. The government should not insist on uniform testing, which would stifle scientists' constant search for newer and better procedures. Food scientists, operating in teams of diversified training, have accepted responsibility to examine and re-examine testing procedures.

**Additives and Cancer**—Attempts to trace a relationship between additives and human cancer were described, but no relationship has been proven. A proposal for pretesting all chemicals used in foods and banning any that cause cancer in animals was called too drastic, as the same carcinogens do not necessarily carry cancer in both man and animals; likewise rejected was a suggestion that all food dyes be tested, because this operation, it was said, would occupy all the time of all the qualified scientists in the country for 25 years.

### **Court Ruling Said to Protect Reducing Pill Advertising**

Two government regulating agencies would like to be more active against exaggerated claims for weight-reducing pills, but they are restrained by federal court decisions favoring the manufacturers. This was the gist of testimony presented by the heads of Food and Drug Administration and Federal Trade Commission to a House subcommittee that is investigating the situation. Earlier, medical witnesses had told the committee that the pills cannot in themselves bring about

loss of weight, and that some of them may present a health hazard to certain persons.

FDA is authorized to act against foods or drugs that are "misbranded," by carrying false claims or other untruths either on their labels or on accompanying literature. FDA Commissioner George P. Larrick said that 13 years ago successful action was taken against a weight-reducing product that had harmful ingredients, and that now "the dangerous type of reducing preparation has all but disappeared completely from the scene."

### **Today's Health**

At its recent meeting in Chicago, the AMA Board of Trustees authorized several important changes in connection with the publication of *Today's Health*, which has a monthly circulation of 400,000.

After hearing and discussing a report from its special committee, which was appointed to study all aspects of the magazine, the Board voted to:

- Continue publication of the AMA health magazine.

- Make William Hetherington managing publisher with added duties.

- Make the editor of the magazine responsible to the managing publisher for editorial content.

- Set up an Advisory Editorial Board.

- Set up a *Today's Health* advertising department with advertising representatives responsible to the managing publisher.

- Appoint an advertising committee to review advertising copy.

Under the new setup, Mr. Hetherington, who has been with the AMA since July 1948, will be responsible to the general manager for the management of *Today's Health* and for carrying out AMA policies relating to all activities of the magazine.

In connection with the editorial changes, the trustees recommended appointment of a full-time editor to relieve Dr. W. W. Bauer of the part-time editorial duties which he has performed for eight years in addition to his responsibili-



ties as director of the AMA Bureau of Health Education.

### **Five Health-Medical Bills Enacted as Adjournment Nears**

With Congress ready to adjourn as soon as there is a break in the civil rights argument, five bills in the health-medical fields have passed both houses in final form and been signed by the President or are waiting only the formality of signature. They are:

**Authorization** for U. S. grants to help in construction of hospitals to be used by both Indians and non-Indians; extent of U. S. grant will depend on estimated proportion of beds to be used by Indians; U. S. also to pay for care of Indians. (This is Public Law 85-151.)

**Authorizing** higher ranks for nurses in military services. (P. L. 85-155.)

**Making mandatory** inspection of poultry by U. S. with Agriculture Department in charge; costs to be assessed against processors. This is at the White House awaiting signature.

**Extending** limit on federal aid to finance traineeships in physical medicine and rehabilitation from two to three years. This also is awaiting Presidential signature.

**Allow** use of unexpended U. S. money to help states establish or expand vocational rehabilitation programs; however, no money may be used to start new projects; also awaiting Presidential signature.

### **Hearing Scheduled for Next Year On Jenkins-Keogh Plan**

Chairman Jere Cooper (D., Ky.) of the House Ways and Means Committee, which steadfastly has refused to consider the Jenkins-Keogh bills this year, has announced general taxation hearings to start next January 7, when this legislation will be among the subjects taken up.

The Jenkins-Keogh plan, strongly supported by the AMA, would allow self-employed persons to get aside a portion of their income in pension plans and defer payment of income tax on it until it is received back in the form of pensions. Cor-

porations now may do this for their employees. The American Thrift Assembly, headquartered in Washington, has carried on the fight for the legislation this year.

### **FDA Proposes Changes in Habit-forming Drug Regulations**

To provide a "more informative and precise identification," Food and Drug Administration proposes to change its regulations governing habit-forming drugs. A FDA official said the change would not affect physicians' prescription writing in any way, and was proposed merely to "let the trade know clearly what we want done."

Under the plan the use of a trade or proprietary name as the official or common name of a habit-forming drug would be discontinued. FDA would insist on use of the official name, but trade names could be listed separately. Regulations cover all the official titles of habit-forming drugs appearing in the standard drug compendia. Chemical names of derivatives and their parent substances would continue to be listed. Interested parties are given until September 20 to file written comments on the proposal.

### **Committee Appointed to Study Medical Research, Education**

Secretary Folsom has named a special committee of medical leaders and industrialists to advise him on the "status and future needs" of medical research and education. He asked the members to study such questions as:

1. Impact of expanding research programs on medical education.
2. Availability of scientists, technicians, and facilities.
3. Relative emphasis given to research in the various disease fields.
4. Relative emphasis given to fundamental studies in the basic sciences generally.
5. Relationship between federal and private research programs.
6. Standards for approval of research projects.

Chairman of the committee is Dr. Stanhope Bayne-Jones, former Yale Medical

School dean and more recently president of the New York Hospital-Cornell Medical Center joint administration board and head of medical research and development for the Army.

### **AMEF Spearheads Fall Campaign**

The American Medical Education Foundation will launch an intensive fall campaign for contributions to the nation's medical schools. October and November have been selected as the months in which to appeal to physicians for individual donations.

To assist local committees, the AMEF has prepared a new pocket portfolio with information cards and pledge envelopes. A new folder entitled "So They May Serve" has also been produced for use in local and state mailings. A new exhibit—first displayed at the A.M.A. convention in New York — is available from the foundation office for state meetings. Featuring pictures of medical schools and gift checks to AMEF, this exhibit illustrates reasons why medical schools should be privately supported.

### **Southern Medical Association Holds Ground-breaking Ceremony In Birmingham**

The first step in the construction of the Association's \$225,000 headquarters office building took place in Birmingham on August 4, when the traditional ground-breaking ceremony was held at the building site. Located on a nearly one acre plot at Highland Avenue and Niazuma on the Southside, the modern structure will symbolize the beginning of the second half-century of the Association's progress. Dr. Fount Richardson, Fayetteville, SMA Councilor from Arkansas, assisted with the spadework.

### **Witnesses Urge U. S. Committee For Handicapped**

In two days of hearings, a House Education and Labor Subcommittee heard a parade of witnesses describe the problems of the handicapped and cite the need for more people trained in rehabilitation work and selective job placement. All supported the bill before the subcommittee, H. R. 9171, which would create a na-

tional committee for the training and development of selective placement personnel and, among other things, establish various pilot programs in rehabilitation.

No witnesses from the administration were heard, and the subcommittee does not plan to take action on the bill this session.

## *Announcements*

### **European Federation of International College of Surgeons to Meet In Vienna and Brussels**

Two meetings of the newly formed European Federation, International College of Surgeons, were announced. One will be held in Vienna, October 18-20, and the other during the World's Fair in Brussels, May 15-18, 1958.

### **Program on Normal and Abnormal Aspects of the Skin to be Featured At A.A.A.S. Meeting**

Chicago — The Committee on Cosmetics of the American Medical Association in co-sponsorship with the Society for Investigative Dermatology will present a two day symposium entitled "The Human Integument-Normal and Abnormal". This program has been arranged at the invitation of the American Association for the Advancement of Science and will be presented before the Medical Sciences Section at the Association's 124th annual meeting in Indianapolis, Indiana on December 28 and 29, 1957.

The symposium will be divided into 4 major sessions: I. The Integument as an Organ of Protection; II. Circulation and Vascular Reactions; III. Sebaceous Gland Secretion; and IV. Pathogenetic Factors in Pre-malignant Conditions and Malignancies of the Skin.

### **Postgraduate Assembly of The Endocrine Society**

The Endocrine Society in cooperation with The Medical College of Georgia will present the Ninth Postgraduate Assembly



in Endocrinology and Metabolism October 21-25, 1957, at the Eugene Talmadge Memorial Hospital, Augusta, Georgia.

### Twenty-Seventh Annual Fall Conference of the

#### Oklahoma City Clinical Society

The Oklahoma City Clinical Society will open its twenty-seventh annual three day Conference at the Biltmore Hotel on October 2, 1957.

An outstanding program of postgraduate teaching has been arranged. This includes lectures and discussions by fifteen distinguished guest speakers selected from various medical and teaching centers throughout the nation. In addition to the general assemblies there will be specialty lectures, a clinical pathologic conference, and daily luncheon roundtable question and answer sessions.

### Fall Meeting of Academy Of General Practice

The Arkansas Chapter of the American Academy of General Practice announces that its 10th Annual Fall Meeting will be held at the Hotel Marion on October 16 and 17. All members of the Arkansas Medical Society are invited to attend.

A partial list of speakers and their subjects is as follows:

W. D. Snively, Jr., M. D. — "Problems of Fluid Balance"

A. Henry Claggett, Jr., M. D. — "Common Complications of Myocardial Infarction"

G. E. Bunch, M. D. — "Management of Congestive Heart Failure"

Ray Gifford, M. D. — Subject to be announced later

H. William Clatsworthy, Jr., M. D. — "Early Diagnosis and Management of Intestinal Obstruction of Congenital Origin"

Murphy J. St. Romain, M. D. — "Management of Abnormal Presentations"

William H. Requarth, M. D. — "Diagnosis and Treatment of Non-Penetrating Wounds of the Abdomen"

D. Malcom Phelps, M. D., of El Reno, Oklahoma, President of the American Academy of General Practice will address the assembly at a luncheon meeting.

## Obituary

Dr. Marcus Lafayette Harris, aged 75, dean of Jackson county physicians, died Tuesday, July 23, 1957, after suffering a heart attack while examining a patient at his office at the Harris Hospital Annex in Newport. Dr. Harris was born on June 18, 1882, in the Corner Stone Community in Independence County, and attended the University of Arkansas and University of Louisville Medical Schools. He received his doctor of medicine degree in 1909 from Louisville and two years prior to that had received his license to practice medicine in Arkansas. He began his practice at Bradford and then moved to Aubrey in Lee county in 1913 and seven years later he moved to Oil Trough where he practiced prior to moving to Newport in 1922. In 1947 in partnership with his son, Dr. M. Haymond Harris, he built Harris Hospital and Clinic. Dr. Harris was a member of the state Board of Medical Examiners, the Jackson County Medical Society, the Arkansas State Medical Society, the American Medical Association and was chairman of the Board of Trustees of the First Methodist Church. He is survived by his wife; three sons, Dr. Harris, Marcus Dean Harris of Tuckerman and Kennedy Harris of Greensboro, N. C.; a brother and a sister; three half-brothers, two half-sisters and seven grandchildren.

Dr. Edward Forest Ellis, one of Arkansas' oldest practicing physicians, died suddenly at his home in Fayetteville August 7, 1957, at the age of 94. Dr. Ellis was born August 19, 1863, in St. Clair County, Missouri, but his parents moved to Northwest Arkansas in 1866. He had practiced medicine in Northwest Arkansas since his graduation from the Missouri Medical College in 1885. He went to Washington County in 1896 and moved to Fayetteville in 1904. He helped found the Fayetteville City Hospital in 1912 and was active on its staff until his death. A former president of the Arkansas Medical Society and the Washington County Medical Society, Dr. Ellis also held many high national offices. He had been a fel-

low in the American College of Surgeons since 1916 and in 1941 he became a founding fellow in the International College of Surgeons. Dr. Ellis was active in civic affairs in Fayetteville and had been a member of the board of directors of the First National Bank since its organization in 1904. He had served as president of the bank and was a member of the Board of Education of Fayetteville schools for 15 years, serving as chairman for four years. He was a member of the First Christian Church, a Shriner and a Mason. Survivors include four daughters, Mrs. Guy Gardner, Russellville; Mrs. Reuben Hays, Cincinnati, Ohio; Miss Elizabeth Ellis, and Dr. Ruth Lesh, Fayetteville; a half-brother, six grandchildren and five great-grandchildren.

Dr. Jeff Banks, 52, head of the gross anatomy department of the University of Arkansas Medical Center, died August 13, 1957, after a week's illness. Dr. Banks was born at Johnson, near Springdale, attended the University of Arkansas periodically from 1923 to 1929 and was graduated from the University School of Medicine in 1934. He started work in that year as instructor at the School of Medicine and was promoted to assistant professor in the Department of Anatomy in 1935. He became associate professor in 1940 and full professor in 1945. He was appointed head of the department of gross anatomy in July. Dr. Banks is survived by his widow, Mrs. Tempa Karnes Banks; two sisters, Miss Virginia Banks, Joplin, Mo., and Mrs. J. Roy Carder, Olton, Texas.

Dr. Chester Howard McKnight, 73, veteran Brinkley physician died Monday, August 12, 1957, in a Brinkley hospital. Dr. McKnight was a graduate of Vanderbilt Medical School. He moved to Brinkley in 1919 after practicing at Cotton Plant. He had served as a division physician and surgeon for M&NA Railroad, the Cotton Belt and the Missouri Pacific Railroads. He was a member of the Arkansas Medical Society, Monroe County Medical Society and was on the staff at Murphy Hospital in Brinkley. Dr. McKnight also was a member of the 3rd District Medical Association and the American Medical Association. He was named to "Who's Who in Medicine" in 1952 and was named

Brinkley's "Man of the Year" in 1948. Dr. McKnight was a Baptist and a charter member of the Brinkley Rotary Club. Survivors include his widow, Mrs. Dott Anderson McKnight; four sons, Howard McKnight, Brinkley; Sidney A. McKnight, Kansas City, Mo.; Charles McKnight, Parkin; and Robert Ed McKnight, Brinkley; four daughters, Mrs. Claud C. Daniels, Georgetown, S. C., Mrs. Fred MacDonald and Mrs. Albert H. Rusher, Brinkley, and Mrs. Asa Hoke, Germantown, Tenn., and two brothers.

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## PERSONALS AND NEWS ITEMS

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A Fort Smith surgeon, **Dr. Harley C. Darnall**, has been appointed medical director and surgeon of the Arkansas Tuberculosis Sanatorium at Booneville. Dr. Darnall has been a member of the Sanatorium's consultant medical and surgical staff since June 1955, and is active in several tuberculosis organizations.

A new member of the Piggott Hospital staff is **Dr. Robert L. Chester**. Dr. Chester joined the staff after recently completing his one year practice residency at the Huey P. Long Charity Hospital in Pineville, La.

**Dr. Hal R. Black, Jr.**, of the Jones-Black Urology Clinic, Little Rock, has been made a Diplomate of the American Board of Urology.

**Dr. R. B. Robins**, Camden, addressed the Arkansas Public Health Association on August 6. The title of his address was "The General Practitioner and Public Health."

North Little Rock's first clinic for the medical treatment of children opened recently. It is The Pediatric Clinic, operated by **Dr. G. F. Stroope** and **Dr. G. M. Thorn**.

**Dr. F. King Wade, Sr.**, of Hot Springs, has been named general chairman for the 1957 campaign of the Garland County United Fund.



Now associated with **Dr. George T. McPhail** at the Forrest City Hospital is **Dr. Solon McGaughey**.

**Dr. Herbert A. McPherson**, of Baton Rouge, La., is now practicing with **Drs. Norman Peacock** and **Joe Shelton** at the Ashdown Hospital.

**Dr. F. J. Scully**, Hot Springs, recently gave an illustrated lecture on "Baden Baden", a European spa, at an out-door program sponsored by the National Park Service. The pictures used in the lecture were made by Dr. Scully on a recent visit to Europe. In this lecture, the comparison was made between bathing in Europe's spas and Hot Springs National Park, Ark.

## *Woman's Auxiliary*

**The Ark-Map** was the name officially adopted for the auxiliary newsletter at the state meeting last April in Little Rock. The fall issue of the **Ark-Map** was published August 15, 1957, with Blue Cross-Blue Shield printing this and subsequent issues gratis for the auxiliary. Plans are for the newsletter to make three appearances each year: a fall issue, a winter issue, and a spring or pre-convention issue. Mrs. Erner Jones of Little Rock has been named assistant editor this year. The auxiliary expresses its gratitude to all of the staff of Blue Cross-Blue Shield, and especially to the Public Relations department, for making **The Ark-Map** possible this year.

**Christmas in October?** No, not exactly. But just a reminder to you that it's not too soon to order your AMEF Christmas cards. Remember, the profit that is made on these Christmas cards goes to the auxiliary AMEF fund. The card, appropriately printed in red or green, says, "As a Christmas greeting to you, a contribution has been made to The American Medical Education Foundation", with a place for your signature. Chairman of AMEF in auxiliary this year is Mrs. John Ruff, 909 East North Street, Magnolia.

Topics have again been announced for the 1958 AAPS Essay Contest for high school students as "The Advantages of Private Medical Care" and "The Advantages of the American Free Enterprise System." This is the twelfth annual national essay contest sponsored by the Association of American Physicians and Surgeons, Inc., and county and state medical societies and auxiliaries are invited to sponsor the contest locally.

Fourteen national prizes are being offered, and certificates of "Meritorious Achievement" are awarded to all contestants whose essays reach the national finals. Last year Arkansas had two winners of cash awards, Jane Bruce of Hot Springs, whose entry was sponsored by Garland County Medical Auxiliary, and Geraldine Raney of Fort Smith, sponsored by Sebastian County Medical Auxiliary. In addition, the following eight students from Arkansas were awarded Certificates of Meritorious Achievement: Cecilia Paulette Mitchell, Suzanne Faulkner, and Sarah Anne Jennings, all of Russellville; Johnny Waldrup, Janet West, and David Marshall, all of Batesville; and Bobbie Ann Rogers and Sally Gallaher of Fort Smith.

**Program Ideas:** For a Safety or Civil Defense program — if Girl Scouts or Boy Scouts from your area attended the National Round-up this summer, ask them to share with you some of their experiences, emphasizing their preparations to insure health and safety and avoid disaster. Morgan County, Alabama, did this, and called it one of the year's best programs.

For fun and information, too — Santa Fe County, New Mexico, had a program titled "Authentic Bridge Table Conversation," for the purpose of giving Doctors' wives a firm foundation of medical fact on those subjects they might be called upon to discuss socially. The topics, presented by members of the medical society, included Obesity and Dieting; Backache; Mistaken Ideas of Obstetrics and Gynecology; Wheezes and Sneezes; We Neurotics; and To Smoke or Not to Smoke.

And speaking of programs, here are some catchy program titles that could be used: "Food Today Shapes Your Figure Tomorrow"; "The Metastasis of Uncle Sam", dealing with the movement of government into the field of private enterprise; "White Cap Benefit", to augment nurses' scholarship fund; "Medical Hearts Fashion Show", using doctors' wives as models; and "The Frightening Forties", mental health for middle age.

**Echoes of the 1957 Convention:** The thirty-fourth annual convention of the Woman's Auxiliary to the American Medical Association was held in New York, June 3 to 7, 1957, with headquarters at the Hotel Roosevelt.

Registration was 1,273, with representatives from practically every component auxiliary. Guests also registered from Australia, Brazil, Canada, and Hawaii.

Mrs. Mason G. Lawson of Little Rock was elected parliamentarian.

A grand total of \$113,540.56 was presented by the national auxiliary to AMEF this year.

The president, Mrs. Paul C. Craig, of Wyomissing, Pa., has announced her theme for 1957-58 as: "**Health Is a Joint Endeavor.**"

San Francisco will be the locale of the 1958 convention — June 23 to 27, with auxiliary headquarters at the Hotel Fairmont.

It is hoped that news of county auxiliaries and their fall programs and projects will be available for the November Journal. In the meantime, if you know of any one who missed receiving her copy of **The Ark-Map**, notify the editor so that the mailing list for the newsletter can be current and complete.

## BOOK REVIEWS

**Practical Gynecology.** Walter J. Reich, M.D. & Mitchell J. Nechtow, M.D. J. P. Lippincott Company. Philadelphia, Pa. pp. 648. 1947. \$12.50

This textbook of practical gynecology is well written and is printed in an excellent type style. It contains an excellent review of the types of examinations and procedures likely to be encountered in general practice. It is not written for the practicing gynecologist. At the end of the book is an excellent series of full color photographs of various gynecological conditions. This book is recommended as a textbook and for the physician in general practice. A. K.

**The Principles and Methods of Physical Diagnosis;** New (2nd) Edition Simon S. Leopold, M.D. Professor of Clinical Medicine, University of Pennsylvania, 1957. pp. 538. Illustrated. About \$8.50. W. B. Saunders Co., Philadelphia.

This book, a compact volume of about 500 pages, covers with thoroughness, completeness, clarity, and succinctness the problems and methods of diagnosis by physical examining.

It includes a good section on history taking and record keeping, and there are numerous brief references to laboratory findings in correlation to physical findings. But, primarily, the book concentrates on the methods of physical examining, the findings made on such examinations, and the interpretations of those findings in making diagnoses.

It can be recommended as an excellent text for the medical student and an equally excellent reference for the working practitioner. W. J. Butt, M.D.

**CIBA Foundation's Colloquia on Endocrinology: Volume X; Regulation and Mode of Action of Thyroid Hormones.** Wolstenholme and Millar, Editors. Illustrated, pp. 311, 1956. \$8.50. Little, Brown & Co., Boston.

The Thyroid activity of the various internal secretions of the gland is studied in chemical and physiological detail. This book reports results of these studies made by various observers, and collected at Ciba's roundtable discussion. It is of considerable value to the laboratory worker and experimenter, while it encourages productive thinking in the physician who is interested in Thyroid function. Fount Richardson, M.D.



# TUBERCULOSIS ABSTRACTS\*

Sponsored by  
The Arkansas Tuberculosis Association

## Advantages of Hospital Admission Chest X-ray Examinations

By Abraham Melamed, M.D.,  
The Journal of the American Medical  
Association, March 2, 1957.

Routine hospital admission chest X-ray examinations are performed in only 21% of all hospitals in the United States according to the 1954 figures of the American Hospital Association. It is difficult to comprehend the reason for such a situation when the advantages of such examinations was demonstrated as long as 20 years ago. For many reasons chest X-ray examinations should be a necessary and integral part of a patient's studies in the hospital.

*Communicable Diseases.*—Routine chest X-ray examination of the hospital population is important to all hospital personnel and to their families. The incidence of tuberculosis and other respiratory diseases is said to be greater among hospital personnel than among workers in any other industry. In any hospital chest X-ray program preemployment and at least *annual* chest X-ray examinations of employees are essential. The making of *semi-annual* chest X-ray films of those on the attending and house staffs is also inherent in such programs.

*Errors in Diagnosis of Chest Diseases.*—The value and necessity of admission chest X-ray examination were demonstrated over 20 years ago when it was proved that, as a group, the physicians at the University of Michigan Hospitals committed one gross error a day without the benefit of such chest X-ray films. This demonstration in itself warrants the adoption of routine admission chest X-ray examination of all hospital patients.

*Unsuspected Cases of Chest Disease.*—Many unsuspected cases of chest disease amenable to treatment are uncovered by admission chest X-ray examination. Prompt treatment of these patients decreases morbidity and mortality rates and

● For many reasons routine hospital admission chest X-ray examinations should be required and performed in all hospitals. There are advantages to the patient and hospital personnel resulting from such examinations. Such examinations represent an integral part of, and advance, in up-to-date hospital and medical care.

the length of hospitalization. In this day of high hospital costs and shortages of hospital beds the latter consideration is not a minor one.

*Preoperative Work-up.*—In the evaluation and preparation of the surgical patient, the routine admission chest radiograph furnishes information of value to surgeons and anesthesiologists. The correlation of the physical findings with the X-ray findings increases the accuracy of the appraisal of the patient's cardiopulmonary status and often influences the choice of the anesthetic agent and type of surgical procedure.

*Record of Chest Condition.*—In everyday roentgenography of the chest, we are faced with the problems of ascertaining, if possible, the acuteness or chronicity of thoracic abnormalities. Many such questions can be resolved promptly and easily if previous chest films are available for comparison. Admission chest X-ray films provide such valuable records, particularly in patients with postoperative and other types of thoracic complications. X-ray diagnosis of chest disease is thus made more reliable and accurate.

*Life History of Disease.*—Over 20 million patients are admitted to hospitals annually. Chest X-ray examination of all such patients would, not only provide information of immediate importance to the patient but also valuable data for the study of the natural history of many chest diseases. The potentialities of the use of such data in the study of primary cancer of the lung has been demonstrated.

*Compensation and Accident Cases.*—In accident and compensation cases, as in other types of medical practice, negative and positive findings are of equal importance. The availability of a routine roentgenogram provides essential data for the treatment of the patient and in the

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permits high dosage,  
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The low incidence of side action with Rolicton (brand of amisometradine) permits high dosage, extending the range of effective diuresis to a greater number of patients than was previously possible.

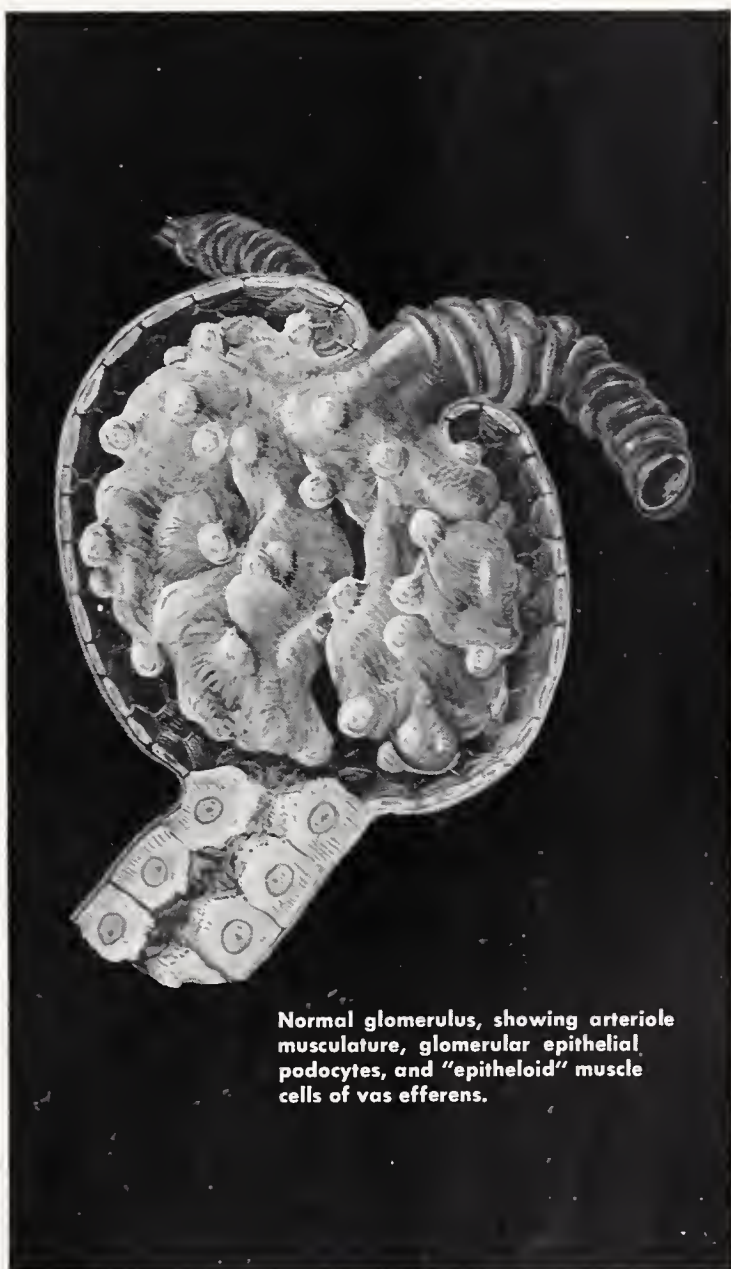
Laboratory studies demonstrate that Searle's new oral diuretic, Rolicton, causes positive diuresis with an essentially balanced excretion of water, sodium and chlorides.

Settel<sup>1</sup> studied the effect of Rolicton in forty-seven patients and found no serious side effects. Assali, who observed the action of Rolicton in five patients with severe toxemia of pregnancy, states<sup>2</sup> that side actions are essentially non-existent. Side actions of such low incidence, together with its diuretic efficacy, suggest a high order of usefulness for Rolicton.

One tablet of Rolicton, b.i.d., is usually adequate to maintain patients free of edema after the first day's dosage of four tablets. Some patients respond well to one tablet daily. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

1. Settel, E.: Rolicton<sup>®</sup> (Amisometradine), a New, Nonmercurial Diuretic, *Postgrad. Med.* 21:186 (Feb.) 1957.

2. Assali, N. S.: Personal communication, May 28, 1956.



Normal glomerulus, showing arteriole musculature, glomerular epithelial podocytes, and "epitheloid" muscle cells of vas efferens.

**SEARLE**



consideration of compensation claims. Un-suspected traumatic lesions of the chest and adjoining tissues which may not produce immediate symptoms are not infrequently uncovered by admission chest X-ray films.

Trauma to other parts of the body may often be suspected or indicated on the basis of intrathoracic changes. For example, basilar atelectatic foci might reflect injury to intra-abdominal and/or diaphragmatic structures.

*Teaching Program in General Hospitals.*—Survey chest X-ray films provide the members of the house staff with an opportunity to become acquainted with the appearance of the average or "normal" chest film, and provide a check on the physical findings. From such correlations the house staff members learn the limitations of the various forms of examination and the indications for further X-ray investigation. A chest X-ray admission program may help to make the hospital an educational center for detection, diagnosis, treatment and even follow-up of chest diseases.

*Routine Hospital Examinations.*—Chest X-ray screening of hospital patients reveals significant positive abnormalities in 10 to 15% of patients. Granted that the presence of many of these abnormalities is suspected, but the severity or extent of disease and/or reactivation of previous disease is very often unsuspected. The percentage of significant positive findings disclosed by admission chest X-ray examination is greater than that revealed by any other routine hospital laboratory procedure.

*Detection of Tuberculosis.*—The great strides made in the treatment of tuberculosis have given us a false sense of security and have resulted in erroneous conclusions. Although the death rate from tuberculosis has fallen precipitously, the case rate in most areas has shown no corresponding or significant change. In the state of Wisconsin, for example, there has been only a slight decrease since the advent of therapy with streptomycin sulfate. Many studies have shown that the yield of tuberculosis among hospital patients is two to eight times greater than that found in

mass surveys. Ill patients entering general hospitals are more likely to have more advanced forms of tuberculosis. Tuberculosis is overlooked more frequently in hospital patients over the age of 50 years than in those under the age of 40 years. One authority has emphasized the necessity of examining the aged—"the neglected seed-bed of the tubercle bacillus."

*Diseases Other Than Tuberculosis.*—Diseases other than tuberculosis are found in 80 to 90% of the patients in whom there are significant positive findings in hospital admission surveys. Many great vessel and cardiac abnormalities are found in hospital chest X-ray surveys. The presence of some or most of these lesions is previously suspected, but in many patients the severity of the condition is under-estimated. The number of patients in whom heart disease is detected is at least four times the number of those in whom tuberculosis is found.

Diaphragmatic abnormalities and changes in the lungs due to atelectasis as revealed on admission X-ray films often provide early clues to intra-abdominal disease although primary intrathoracic disease may be responsible for the symptoms. When portions of the upper extremities and lower neck are included on admission chest minifilms, it is not unusual for unsuspected lesions in these areas to be detected.

The results of chest X-ray surveys for the detection of curable cancer of the lung have been disappointing. The poor results are not to be attributable to the X-ray method but more to lack of appreciation and delineation of the X-ray signs of early cancer of the lung. Unfortunately, when the X-ray evidence is characteristic, cure is almost impossible.

Attention must be focused on asymptomatic patients if we are to make any significant advance in the treatment of this disease. Surveys yield impressive dividends when abnormal shadows of any kind are suspected of indicating carcinoma in men over the age of 45. X-ray evidence of lung cancer is present in the average case for more than 24 months before the diagnosis is established. It is possible to detect the presence of cancer earlier if our suspicion is aroused by any unexplained pulmonary abnormality.

# The JOURNAL

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## A New Surgical Approach to the Problem of Myocardial Revascularization in Coronary Artery Disease

ROBERT P. GLOVER, M. D.\*  
*Philadelphia, Penna.*

The incidence of death and disability from coronary arterial disease seems paradoxically to be mounting steadily despite an ever increasing effort on the part of both physician and surgeon to modify its insidious course. Inroads have been made toward the modification of its underlying etiology—sclerosis—by metabolic means but an ultimate solution seems remote at the moment. In the interim surgeons have attempted to improve myocardial vascularity, despite the natural progression of occlusive changes, by augmenting its diminished blood supply from neighboring vascular structures or by redistribution of myocardial blood from unaffected to affected areas (1-6).

In 1939 at the suggestion of Fieschi (7) in Italy, Zoja and Cesa-Bianchi ligated the internal mammary arteries of a patient who for some years had suffered from repeated myocardial infarcts. The operation was performed under local anesthesia and the patient enjoyed an excellent postoperative course. To quote Fieschi—"The patient, after two years, is still alive and has had no further acute attacks of infarction." This operation was the culmination of Fieschi's rather mod-

est attempts to amplify known anatomic demonstrations of the naturally occurring communications found between the ramifications of the internal mammary arterial bed and the coronary circulation. Previously he had been able to trace, by radio-opaque injections, vascular channels from the internal mammary artery through its pericardiophrenic branch into a few peri-aortic and peripulmonary arterial rami. It was his hypothesis that the coronary arterial circulation might be favorably influenced by creating hypertension in the circulatory collateral of the mammary arteries by occluding these vessels in the second intercostal space (Figure I). Indifference on the part of his professional contemporaries prevented expansion of this effort just as a similar apathy has impeded the enthusiasm of most investigators throughout the world regardless of their field of endeavor.

In 1955, Battezzati, Tagliaferro and De Marchi amplified the work of Fieschi and reported the results of their anatomico-surgical research both experimental and clinical. In cadavers they injected methylene blue and India ink at the level of the second intercostal space into a segment of the internal mammary artery containing the origin of the pericardiophrenic artery after occlusion of the mammary at the subclavian artery. Excellent mapping of the vascular network within the parietal pericardium was obtained and on occasion the dye could be seen in the

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Research program supported by the Cardiovascular Research Foundation, Philadelphia, Pa.

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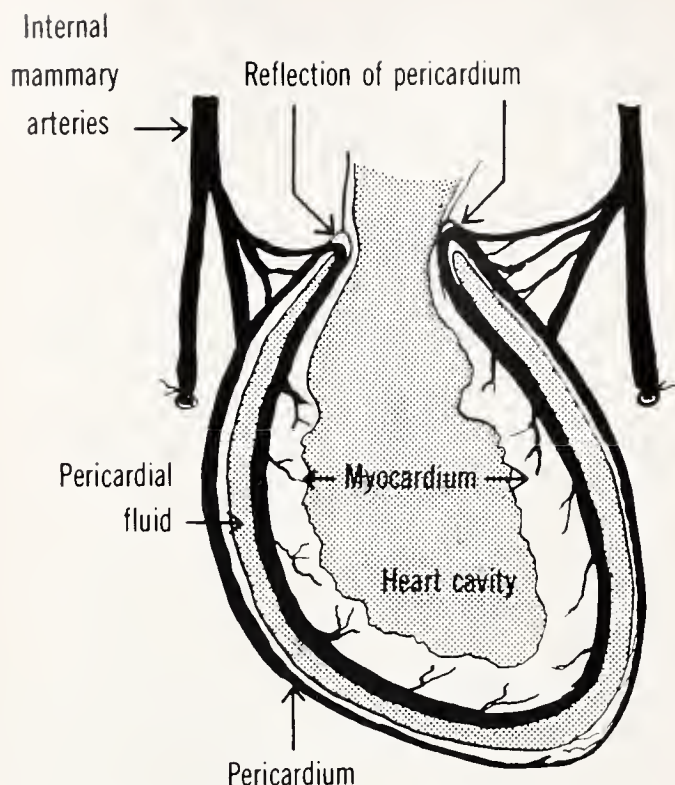


Figure 1. Schematic drawing to show the continuity of the pericardium (parietal pericardium) and the epicardium (visceral pericardium). Both arise from the same embryonic anlage hence to an extent there is continuity in nerve, lymph and blood supply.

vascular rami of the myocardium and epicardial fat. The same but more complete and detailed findings were obtained in dogs.

Eleven patients, suffering from angina pectoris caused by coronary sclerosis, were subjected to internal mammary arterial ligation by them. In each the anginal syndrome was abolished and remained so even after the patient had returned to normal activity. In addition, the signs of myocardial insufficiency particularly dyspnea disappeared in most of those in whom it was present as did the electrocardiographic tracings of myocardial ischemia and the ballisto-cardiographic recordings were modified favorably in eight of the eleven. In an addendum fourteen additional patients obtained similar clinical and objective improvement.

This highly favorable report stimulated the author to repeat these studies and to observe at close range the phenomena which had presented itself to the Italian workers. It must be readily admitted that considerable skepticism as to the efficacy

of such findings and results was entertained. Even though anatomical channels between the internal mammary and coronary arterial systems existed, it seemed unlikely physiologically that a sufficiently increased vascular flow between the two could be obtained by such means. On the other hand if such an innocuous procedure, surgically speaking, could result in even a portion of the reported findings then surely a contribution of considerable magnitude was at hand. Further, the realization that for its success this method might call into play and enhance naturally existing channels which the body itself employs under stress and stimulus made this investigation doubly attractive.

#### ANATOMICAL BACKGROUND

As early as 1880 Langer (8) pointed out that the vascular system of the heart was not an independent circulation. He observed the vasa propria of the heart (arterial and venous) to anastomose extensively with the vessels of the pericardium, the bronchial vessels and the diaphragm via the vasa vasorum of the great cardiac vessels. He stated that these extracardiac coronary anastomoses made it possible to feed the heart collaterally after the obstruction of a main coronary branch.

Gross (9), in 1921, confirmed this earlier work by showing distinct connections between the coronary arteries and the vessels of the parietal pericardium. He further commented upon the development of the rami telae adipose with advancing age with or without the stimulus of disease within the coronary arterial pathways.

In 1932, Hudson, Moritz and Wearn (10) in a most enlightening study injected the coronary arteries at their ostia with solutions containing India ink, lamp-black or 10 percent bismuth oxychloride under a positive pressure of 220 mm. of mercury for five minutes or longer with the heart in situ. The extracardiac coronary anastomoses shown in this manner were most extensive and widespread. From the major coronary vessels communications were shown to the pericardiophrenic branches of the internal mammary arteries and the anterior mediastinal, pe-

ricardial, bronchial, superior and inferior phrenic, intercostal and esophageal branches of the aorta. The most extensive anastomoses between the cardiac and extracardiac vessels were around the ostia of the pulmonary veins but also along the root of the aorta, pulmonary artery, venae cavae and wherever the pericardial reflections occurred. As an extension of the same study Moritz, Hudson and Orgain (11) reported that in four patients the extracardiac coronary anastomoses were increased due to pericardial adhesions. Beck, Tichy and Moritz (12) employed this knowledge as a basis for the surgical production of pericardial adhesions to augment these extracardiac anastomoses.

#### EXPERIMENTAL METHODS AND DATA

That there are significant extracardiac anastomoses with the coronary arterial bed is unquestioned. Whether these normal and slowly increasing (advancing age) intercommunications can be used as the pathway for rapidly increasing blood supply to the myocardium and promotion of intercoronary anastomoses remains to be proved. Undoubtedly such proof in a quantitative manner will be difficult if not impossible to obtain for the very nature and diversity of the vascularity involved presents almost insurmountable problems for measurement. Great care must be taken in all experiments to avoid damage to the very vessels one is trying to evaluate.

To further verify the existence of a significant communication between the internal mammary and coronary arterial systems injection studies were made in a series of normal dogs. Details of these experiments are in publication (13). Their results were as follows:

1. Significant quantities of dye (Evans Blue, Fluorescein and I131) injected into the internal mammary arteries at the level of the pericardiophrenic arteries were visualized in all animals in the small vessels throughout the parietal pericardium, in the mediastinal pleura and fat; around the base of the aorta and pulmonary artery and cavae; in the walls of the atria; in the epicardial fat over the atrioventricular grooves and repeatedly in

the small plexuses of vessels underlying the epicardium. In one instance the entire thickness of the left ventricular myocardium was stained with dye even out into the base of the papillary muscles.

2. Gross dye mixed with blood was observed to flow from the distal ends of the transected circumflex or anterior descending artery in those dogs so prepared.

3. Radioactive iodine was found in the venous specimens removed from the coronary sinus in increasing amounts with the usual peak reached from five to ten minutes after injection. The peak was somewhat variable but for the most part followed a set pattern.

4. 1 cm. segments of left ventricular myocardium and the posterior interventricular septum were routinely found to contain radioactive iodine.

5. The source of this extracardiac arterial supply by the conditions of the experiment could only be by way of the pericardiophrenic artery to the parietal pericardium, thence to the myocardium under the epicardium along the roots of the great vessels and at the reflections of the pericardium.

As a natural corollary to these studies quantitative measurements of coronary backflow are desirable. As yet these observations have not been made but preparations for such a study in this laboratory are in progress.

An attempt has been made to evaluate the degree of protection internal mammary artery ligation previously performed may afford the experimental animal when subjected to the production of sudden, acute myocardial infarction by ligation of the anterior descending coronary artery at its origin. The performance of this type of experimentation must likewise be done with great care and due regard to the variations in the anatomy of the left coronary artery observed. The left coronary artery divides approximately 1 cm. from its origin at the aorta into the circumflex artery which continues around the heart in the atrioventricular groove and the anterior descending artery coursing down over the anterior aspect of the heart roughly overlying the interventricular septum. At this bifurcation but variably situated the septal



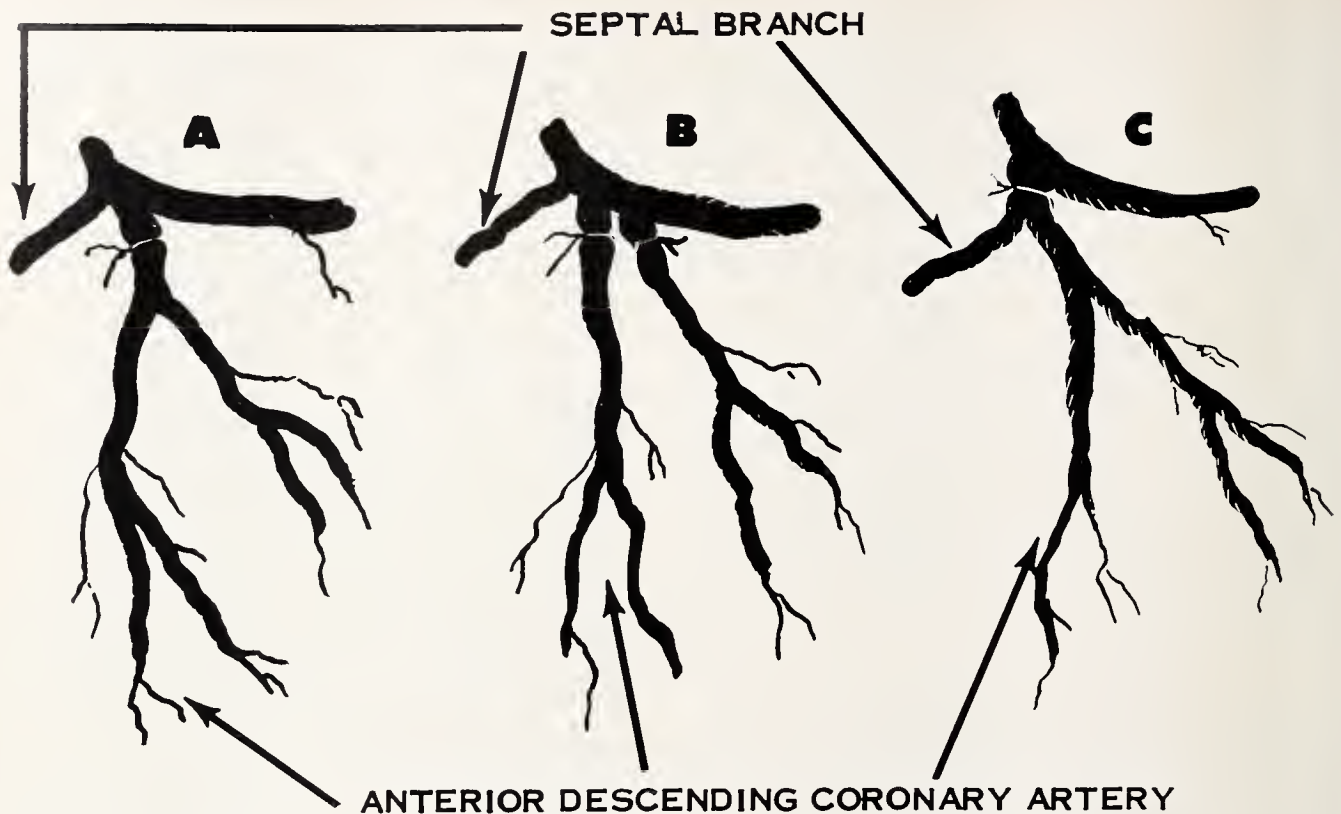


Figure 2. Diagram to show left coronary artery and its common variations. A is its usual pattern and point of ligature in these experiments. B—The first branch usually arising from the descending coronary artery requiring a second ligature. C—Ligature at the origin of the descending coronary artery has inadequately included a low lying septal branch (such ligations were excluded from this study).

branch arises and courses posteriorly in the interventricular septum. Just beyond the origin of the anterior descending artery its first branch which is rather large swings laterally and downward over the anterolateral aspect of the left ventricle. Thus ligation of the anterior descending artery in this experiment is designed to occlude both the anterior descending and its first branch as described but the septal branch is spared. Not infrequently the first branch of the anterior descending artery instead of arising from its normal parent artery arose from the first portion of the circumflex artery so that under these circumstances a separate ligature was employed to occlude it at this aberrant origin (Figure II). By following this method close uniformity was maintained throughout the experiment. It was hoped that survival in the control group would approximate 30 per cent so that in-

fart size could be compared with that of the "protected" group of animals. The "protected" group of dogs were treated in the same manner but in these the internal mammary arteries were ligated immediately before, at twenty-four hours and at forty-eight hours before ligation of the anterior descending coronary.

In 14 control dogs the anterior descending coronary artery with the aforementioned branch to the anterolateral aspect of the left ventricle was ligated. Nine of these animals went into ventricular fibrillation and died within five to twenty minutes. Attempts to resuscitate them by defibrillation and massage were to no avail. Four others died within twenty-four hours. One dog lived two weeks and died in pulmonary edema. Thus, these control animals were judged on the basis of survival rather than upon size of infarction for obvious reasons.

In nineteen dogs bilateral ligation of the internal mammary arteries was performed five to forty-five minutes, twenty-four hours and forty-eight hours before ligation of the anterior descending coronary artery as above. The time interval seemed to make little or no difference in the degree of protection provided. Four of these animals died within a few minutes in ventricular fibrillation and four

SURVIVAL RATE IN DOGS FOLLOWING LIGATION OF DESCENDING CORONARY ARTERY					
	NO. OF DOGS	DIED AT OPERATION	DIED IN 24 HRS.	SURVIVED 5 DA. OR MORE	LIVING
	14	9	4	1	0
UNPROTECTED					

PROTECTED	5 MIN. TO 45 MIN. BEFORE -	4	0	1	3	2
	24 HRS. BEFORE-	7	1	2	4	2
	48 HRS. BEFORE -	8	3	1	4	3
	TOTAL	19	4	4	11	7

Figure 3. Total data obtained in 33 experiments to show a possible measure of protection provided to the myocardial circulation by bilateral internal mammary artery ligation (BIMAL).

others died within twenty-four hours. The remaining eleven dogs (58 per cent) lived five or more days and seven (36 per cent) are still living having recovered completely (Figure III). Each heart of the twenty-six dogs who eventually died was carefully dissected and in each the septal branch from the left coronary artery was patent and uninjured. Six dogs in the original series, both among the protected and unprotected groups, were found to have had the septal branch inadvertently ligated with the anterior descending coronary artery hence they were excluded from this analysis.

Under the conditions of this experiment which was closely controlled and meticulously performed it is felt that a significant degree of protection was obtained by bilateral internal mammary ligation in the manner described.

In an initial effort to investigate the hemodynamic pressure changes in the internal mammary artery above or proximal to the site of ligation, pressure tracings were obtained in two animals. In one a mean pressure rise of 7 mm. Hg. was noted and in another a mean rise of 14

mm. Hg. was recorded. Each pressure rise was maintained for twenty to thirty minutes, the full period of observation. Simultaneous measurement of systemic arterial pressure in the left carotid artery showed no pressure variation.

Holman has shown that "the collateral circulation which develops following ligation of a large artery depends upon transforming high 'end pressure' in the parent artery into 'lateral' pressure which, directed into its branches, results in an increased volume flow through them. This increased volume flow distends them and opens up their pre-arteriolar and arteriolar beds, whence the flow is directed into the pre-arteriolar beds of the branches distal to ligation, whose low pressure because of the ligation, permits blood to flow through them more readily than through pre-arteriolar beds elsewhere." This phenomenon would seem to occur in the case of the ligated internal mammary artery where the increased pressure proximal to the ligature is transmitted down the pericardiophrenic artery into the extensive arterial plexus over the parietal pericardium. These vessels freely anastomose with those from the superior phrenic, one of the two arterial terminations of the distal internal mammary artery completing the collateral circuit (Figure IV). It is believed, and this specific



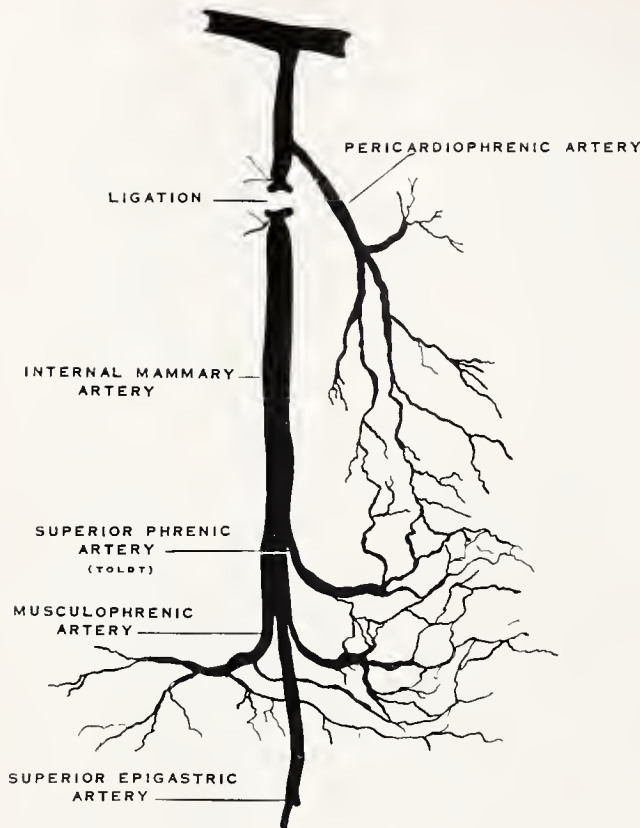


Figure 4. Schematic representation of internal mammary arterial collateral circulation as enhanced by ligation at the level of the second intercostal space.

point is presently under investigation in this laboratory, that this circuit is shared by the myocardium through its extracardiac communications with the pericardiophrenic arterial system and accounts for the clinical improvement in patients so treated. It must be clearly understood, however, that this supposition has not been proved and at present is pure speculation.

#### CLINICAL APPLICATION

Even as the experimental proof for the efficacy of a procedure of this type is difficult to obtain so also is the evaluation of its clinical application. It has long been recognized that the available clinical methods for objective measurement of the status and severity of coronary artery disease, acute or chronic, are woefully inadequate. Those who have pioneered so magnificently the direct surgical approach to the problem of coronary insufficiency (Beck, O'Shaughnessy, Thompson, Fauteux, Vineberg and others) have commented upon the fact that the patient's own history and subjective information is of far more importance in ultimate evalua-

tion than are the electrocardiogram or ballistocardiogram. This has been particularly true when surgical techniques involving pericardiotomy with trauma and the introduction of foreign bodies have been employed. It may be equally true of this technique even though the pericardium and pleura are not entered or disturbed.

Because all advocated techniques to date have required open thoracotomy, erroneously considered by most physicians as highly dangerous in itself, the proper use of myocardial revascularization by these means has never attained its measurable goal. They have rarely been given a chance on a wide scale or over a long period of time. This is perhaps the fault of the surgeon even more than of the physician because of the multiplicity of procedures advocated and their ever changing modifications. Possibly the introduction of internal mammary ligation as a means of myocardial revascularization because it is innocuous and easily tolerated even by the desperately crippled patient may break down the barrier of fear and open the way to a better understanding of what surgery has to offer. At this writing the author is not laboring under the delusion that the operation herein reported is the "sine qua non" for coronary artery disease and should be used to the exclusion of all others. On the contrary the Beck I procedure and simple talc poudrage have demonstrated their value and are not to be abandoned or deprecated in the slightest without cause. Bilateral internal mammary artery ligation (Bimal) to be considered on the same plane as current procedures has to prove its merit with the passage of time and time alone. It may well be that its proper place will be as an adjunct to existing measures. On the other hand should it eventuate in clinical results equal to those presently obtained by other means it will surely seek its own level and replace them. In any event it must be tested critically.

Brofman (14) has stated—"The one indication for operation is a positive diagnosis of coronary disease." A more succinct and definitive statement could not be made. The patients included in this

series were just that. They fall into three categories:

1. Angina pectoris due to coronary insufficiency (arteriosclerosis or hypertensive) primarily post proved infarction, occasionally without proved antecedent infarction.

2. Arteriosclerotic heart disease with coronary insufficiency resulting in myocardial insufficiency—(a) episodic heart failure, (b) arrhythmias.

3. Hemodynamic coronary insufficiency (angina) due to aortic valvular disease. True coronary artery sclerotic changes may well be absent in this group.

With the inception of any new surgical procedure invariably the clinical material referred for its application represents the last stage of the disease in question—the case in which every other therapeutic measure has failed. The patients in this series were no exception to this time honored pattern. Seventy-seven patients have been operated upon to date. The criteria for surgery was the presence of organic coronary insufficiency with angina pectoris as outlined above. No patient with these findings were turned down because of age, debility, unstable disease, frequency and severity of attacks, hypertension, cardiomegaly, past cardiac failure or the like as has been the case in most series reported and treated by other surgical techniques. In other words they were not carefully culled so that only the better cases were selected. The youngest was thirty-three and the oldest eighty-two years of age. Sixteen were over sixty years, of whom five were over seventy and two over eighty.

Fifty of these patients have been carefully followed for from one to five months and form the basis of this initial analysis. Thirty-nine were male, eleven were female. Evaluation of the results obtained has been the sole responsibility of one cardiologist, Dr. J. Roderick Kitchell, Chief of Cardiology at Presbyterian Hospital. Thirty-four (68 per cent) have been clinically improved in that they either have no angina (18 patients—36 per cent) or now have fewer and less severe attacks of pain (17 patients—32 per cent). In most of these improvement or abolition of pre-operative pain and discomfort was imme-

TABLE I  
RESULTS OF BILATERAL LIGATION  
AND DIVISION OF THE INTERNAL  
MAMMARY ARTERIES  
(50 Patients Followed 1 to 5 Months)

Improved	Total Group	44 Patients Under 70 Years
—Asymptomatic	18	18
—Moderate	11 34 or 68%	11 32 or 73%
—Slight	5	3
Clinically Unchanged	11 or 22%	9 or 20%
Dead		
—Within one month	3	3 or 7%
—Over one month	2 5 or 10%	

diately, in some forty-eight to seventy-two hours were necessary and in a few a week or ten days elapsed before the eventual results seemed complete. In eleven patients (22 per cent) no clinical improvement is now apparent although several seemed improved for a time. Five patients have died since surgery (Table 1). Six of these patients were operated upon within two weeks of an acute infarction and three of these are now dead (see below). Seven more, making a total of thirteen, underwent surgery within six months of an acute infarction. Much could be added to this brief recitation of figures but in a disease so protean and unpredictable more time must pass before definitive statements should be made.

The underlying pathologic basis for the coronary insufficiency in this group of patients has been summarized in Table 2. Although the numbers of cases are far too few to permit conclusions to be drawn the very decided impression was gained that

TABLE II  
RESULTS ACCORDING TO BASIC  
PATHOLOGIC PATTERN

	Arterio- sclerosis	Hyper- tension	Hemodynamic Aortic Stenosis	Insuf- ficiency
Total	40	7	2	1
—Asymp- tomatic	12	3	2	1
—Moderate improvement	9	2	0	0
—Slight improvement	5	0	0	0
	26 (65%)	5 (71%)		
—Clinically unchanged	9	2	0	0
—Dead	5	0	0	0



TABLE III  
CORRELATION OF CLINICAL RESULTS WITH  
TYPE OF ANTECEDENT INFARCTION

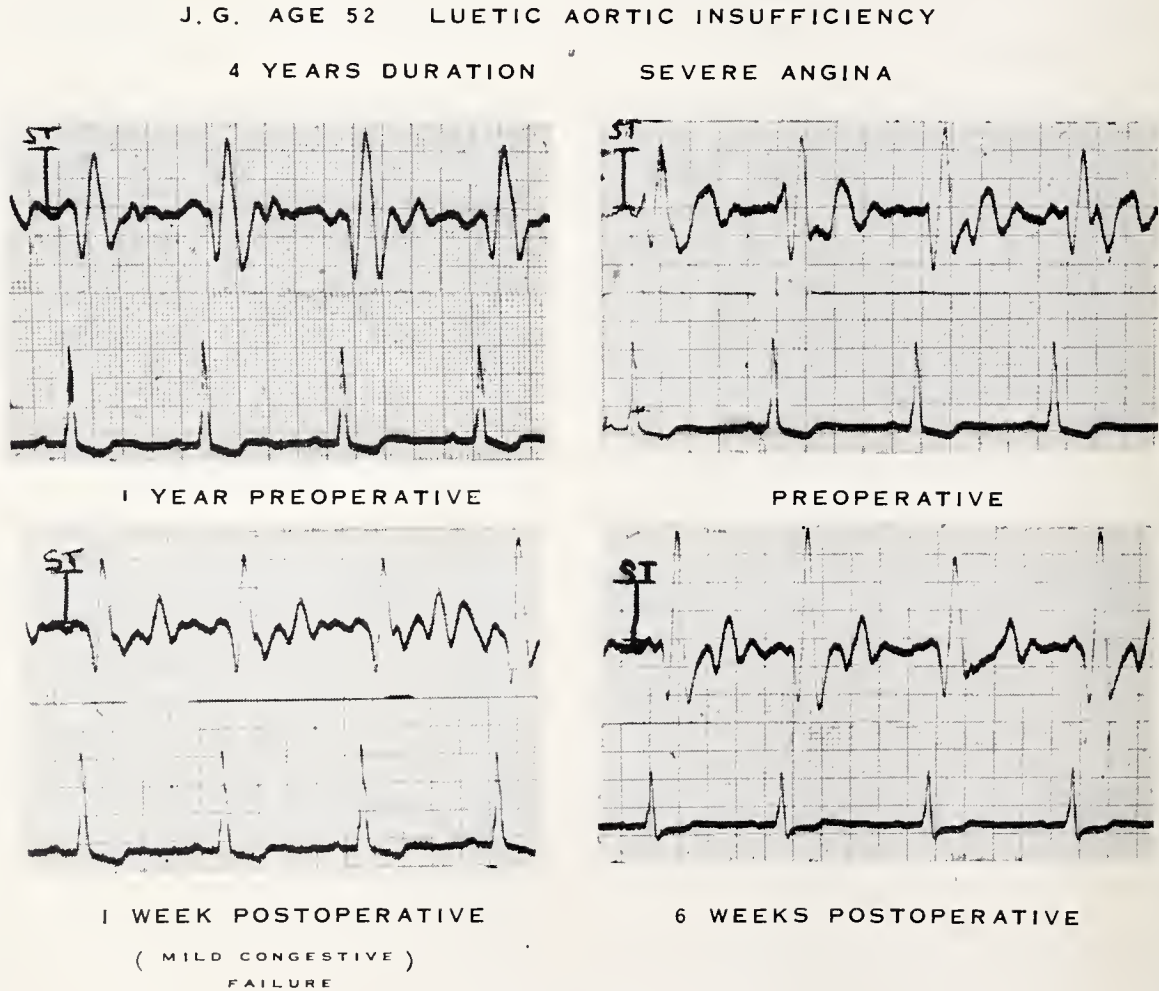
	Anterior		Posterior		Septal		Ratio of total infarcts No. of patients —this group
	Old	Recent	Old	Recent	Old	Recent	
Improved (34 Pts.)	9	3	13	0	11	1	37:34
Unchanged (11 Pts.)	2	2	2	0	2	1	9:11
Dead (5 Pts.)	3	0	3	0	3	2	11:5

those with hypertensive cardiovascular disease obtained the better result. Whether the hypertension favored the development of a higher gradient of pressure within the pericardiophrenic arterial collateral bed and therefore greater blood flow is conjectural at this point.

Of very considerable interest is the correlation of the clinical result obtained in these patients with the type and number of antecedent infarctions sustained. Such an analysis cannot be strictly accurate to the last detail for some overlapping is inevitable. The forty-five patients who have been clinically improved or unchanged suffered a total of forty-six infarctions,

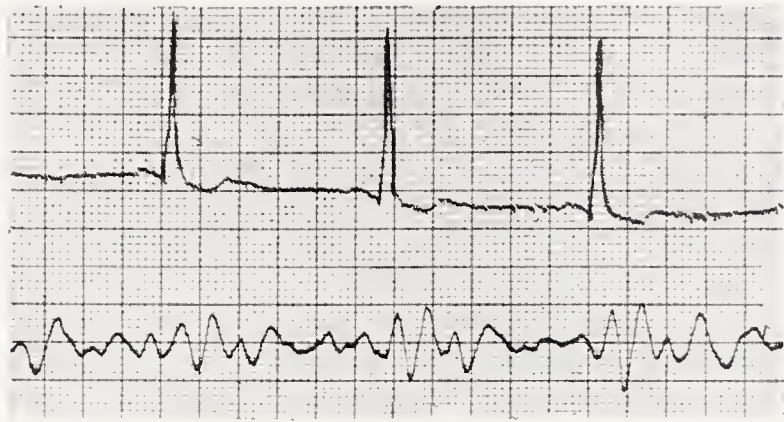
thus averaging approximately one infarction per patient. The five patients who have died averaged more than two infarctions apiece and each of these patients suffered one septal infarction. The inference is that septal infarctions are the more hazardous and the least affected by this procedure (Table 3).

Figure 5. BCG and ECG tracings taken one year and two days before BIMAL (upper tracings) and one week and six weeks postoperative (lower tracings). Note the deterioration in BCG during the preoperative year, the fact that no essential improvement has occurred within the first postoperative week. In the six-week postoperative record note the considerably increased amplitude of the J waves concomitant with her marked clinical improvement.



J. C. — INTERNAL MAMMARY LIGATION

PRE-OPERATIVE



ONE  
MONTH  
POST-OPERATIVE

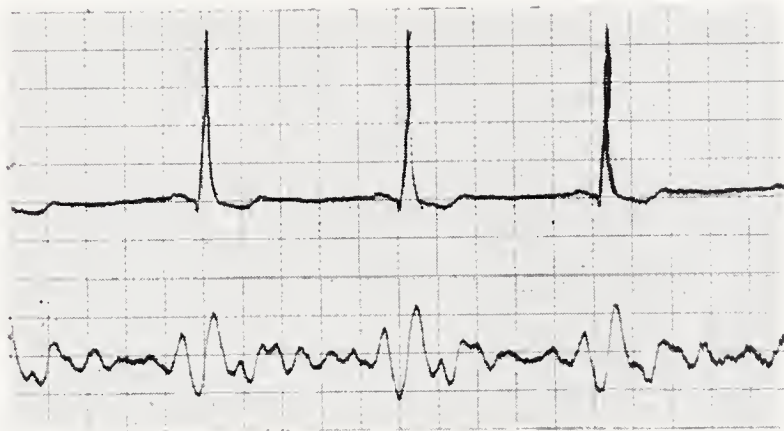
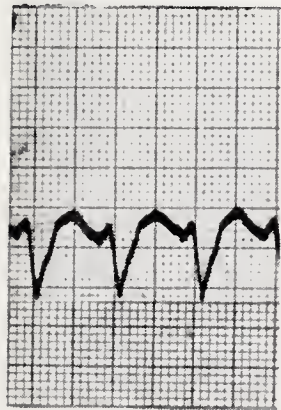
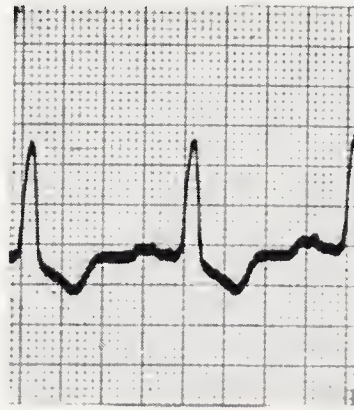


Figure 6. BCG tracings made preoperatively and one month postoperatively in a patient who obtained a marked improvement clinically. In the preoperative record the abnormal H wave has nearly the same amplitude as the J wave. The postoperative record is practically normal with generalized improvement in amplitude.

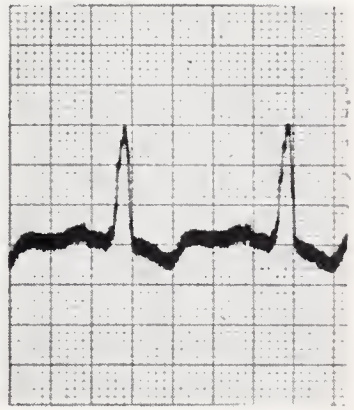
Figure 7. ECG tracing in a patient subject to frequent attacks of ventricular tachycardia requiring intravenous pronestyl. There has been only one mild attack postoperatively. Note the shift in axis in lead I in transition from ventricular tachycardia to the patient's usual left bundle branch block.



3/4/57  
LEAD I (PRE-OP)  
VENTRICULAR  
TACHYCARDIA



3/5/57  
LEAD I (PRE-OP)  
NORMAL SINUS  
RHYTHM



3/12/57  
LEAD I (POST-OP)



## OBJECTIVE FINDINGS

For some years after the introduction of true cardiac surgery there were many who could not accept the fact that patients were truly improved because of the great discrepancy between functional results and objective proof. No form of cardiac disease has shown itself to be more resistant to exact measurement than has coronary artery disease. This is not the fault of the pathologic entity but rather the inadequacy of professional instrumentation. The patient is certainly not to blame if he feels better, is more productive in society and is enjoying improved health to the consternation of the physician who just will not believe it because the improvement cannot be documented electrically. Wherein lies the answer?

Thirteen of these patients had electrocardiographic evidence of improvement and nine had improved ballistocardiograms. Curiously, only one showed improvement in both the ECG and the BCG. Thus, twenty-one patients (42%) have shown objective improvement compared to 68 per cent showing clinical improvement. This comparison may not be entirely accurate for in only twenty patients have the ballistocardiograms been taken over a month from the time of surgery. Since the ballistocardiographic tracing most frequently deteriorates after any operative procedure during the first postoperative week and these patients were routinely discharged one week after surgery the ballistocardiographic data in over one half of the patients (taken on the sixth post-operative day) may well be altered (Figure V & VI).

Of the thirteen (26 per cent) who had improved electrocardiographic tracings after surgery the following changes were observed:

In ten the depressed ST segments returned toward normal (Fig. V & VI).

Nine had more normal T waves.

Two had improvement in rhythm (Fig. VII).

One had a definite improvement in voltage.

In one the QRS was less slurred.

Paradoxically two patients who were unimproved clinically had improvement in their electrocardiograms and two pa-

tients who died of causes other than cardiac had brief improvement in their tracings.

Exercise tests of benefit were not employed in this series for the preoperative diagnosis was not in question in any instance. It was felt unwise to risk the possible complication which occasionally follows such procedures in the more precarious stages of this disease.

## CAUSE OF DEATH

In only one of the five fatalities which occurred after surgery could there be any indictment of the surgery itself. This patient, a fifty-four year old white male, had suffered three posterior and one septal infarctions. For some hours prior to surgery anginal pain had been all but constant. The administration of Neosynephrin was necessary to obtain a blood pressure reading in the operating room. During the operation ventricular tachycardiac was continuous (all cases are monitored by oscilloscopic and electrocardiographic recordings). In the recovery room his heart beat deteriorated and stopped and resuscitation was unsuccessful. The operation was obviously ill advised but there seemed to be nothing to lose and everything to gain by the attempt. An autopsy revealed several small infarctions, posterior and septal, but no large single area of necrosis. All coronary arteries showed advanced atherosclerosis. The right coronary artery was completely occluded one centimeter from its origin.

A second patient, white, male, age fifty-three, with two healed infarctions had suffered (noted in retrospect only as all the electrocardiograms had not been available) another septal extension eighteen days preoperatively. He was allowed out of bed on the day of surgery and increased his activities on the next two days. He collapsed and died suddenly on the third postoperative day. Had the recent infarction been suspected he would have been immobilized for several weeks.

The third patient, white, male, age sixty-five, with two previous infarctions, did exceptionally well clinically and was discharged on the sixth postoperative day. An ECG taken on the day of discharge was not read until the following week.

He remained pain free and active despite an unappreciated small anterior subendocardial infarct which appeared on the final ECG. He died in his sleep on the ninth postoperative day.

Two other patients, elderly white females, aged seventy-two and eighty-two respectively and suffering from a multiplicity of diseases in addition to old anterior and septal infarctions, died thirty-five and thirty-one days after mammary ligation from pyelonephritis, adrenal insufficiency and congestive heart failure with cardiomegaly in one and generalized lymphosarcoma in the other. Both obtained marked initial relief of angina and myocardial insufficiency until the terminal stages.

## SURGICAL TECHNIQUE

The performance of bilateral division of the internal mammary arteries as compared to other surgical procedures for cardiac disease is safe, simple and innocuous in capable hands. Although the technical risk is negligible one must remember that the disease being treated is highly lethal. The application of this procedure and any other will inevitably be followed by the morbidity and mortality of severe coronary artery disease for such operation are palliative not curative.

The choice and conduct of anesthesia is of paramount importance. Two types have been used. For those whose condition is precarious and unstable a local anesthetic, 0.5 per cent procaine, is used. One side is injected and operated completely and then the other. This avoids the sudden introduction of too much anesthetic agent which may tend to lower the blood pressure. No more than 50 cc. of solution total is necessary when used properly. Those patients who are in good condition and in whom the disease is reasonably stable easily tolerate a light general anesthesia of sodium pentothal induction and maintenance on 50 per cent N<sub>2</sub>O and O<sub>2</sub>. Small amounts of succinyl choline may be used as a supplement. Endotracheal intubation is not necessary but should be available.

Bilateral hockey stick incisions are made at the lateral borders of the sternum in the second interspace. Simple transverse incisions are adequate but pro-

vide very limited exposure when the interspace is narrow and the musculature well developed. The curved incisions with its reflected flap exposes the entire interspace without restriction. The pectoralis muscle is split and retracted in a normal line of cleavage. The intercostal muscles are incised midway between and parallel to the ribs. The fat overlying the pleura is encountered as it surrounds the mammary vessels commonly lying one finger's breadth lateral to the sternal margin. The vein courses immediately medial to the artery and is left intact. Great care and patience must be exercised when mobilizing the artery from its areolar attachments to the pleura. The artery is divided between ligatures. The right internal mammary artery is commonly larger than the left.

The procedure may be considerably more difficult than it sounds in heavy-set, thick-muscled males. Hemorrhage and inadvertent opening of the pleura can be the only complications and usually are readily controlled. Significant changes in blood pressure must be avoided. Oscillographic and electrocardiographic monitoring is desirable but not essential.

## SUMMARY AND CONCLUSIONS

1. A critical although purely preliminary attempt has been made to assess the value of Bilateral Ligation and Division of the Internal Mammary Arteries as a means of increasing blood supply to the myocardium. The concept for this approach is that of Fieschi. Battezzati, Tagliaferro and De Marchi have been responsible for reintroducing and amplifying this original concept. By and large the studies reported in this discussion confirm the findings of these Italian investigators. At the moment, however, considerable reservation as to the ultimate place of this surgical procedure is warranted. Whether it will eventually remain as a surgical entity on its own merits or will be used as an adjunct to other surgical techniques cannot be decided until much more investigation work, both experimental and clinical, has been carried out.

2. That there is a naturally developing extracardiac communication between the coronary arterial and pericardiophrenic



arterial vasculature has again been confirmed.

3. As yet there is no experimental proof that ligation of the internal mammary arteries bilaterally at the level of the second interspace actually increases blood flow to the heart although the supposition that it does is strongly entertained.

4. There is the decided suggestion that in dogs ligation of the internal mammary arteries provides a measure of myocardial protection to the subsequent production of acute coronary occlusion by ligation of the anterior descending coronary artery at its origin.

5. Ligation of the internal mammary arteries at the second interspace is followed by an increase in mean arterial end pressure above the point of ligation in dogs.

6. Seventy-seven patients suffering from arteriosclerotic and hypertensive cardiovascular disease with organic coronary insufficiency and angina pectoris have been subjected to bilateral internal mammary artery ligation (BIMAL). The angina pectoris in three of those patients was secondary to advanced aortic valve disease. Fifty of these patients have been carefully followed for one to five months. By conservative clinical evaluation 34 or 68 per cent of these patients have either lost their symptoms of pain (18 or 36 per cent or have been immeasurably relieved of their discomfort (17 or 32 per cent). The remainder were unimproved.

7. Objective evidence of clinical improvement lags well behind the observed clinical improvement. In 13 (26 per cent) the electrocardiographic tracings taken one month or more after surgery show obvious improvement and the same may be said in 9 (18 per cent) of the ballistocardiographic studies obtained. As this evidence of improvement occurred on only one occasion in the same patient, objective signs for the better have occurred in 22 (42 per cent) patients. We are indebted to and acknowledge the very considerable help rendered by Dr. Isaac Starr, Hartzell Research Professor of Therapeutics, University of Pennsylvania Medical School, who supervised and read all ballistocardiograms.

8. A simple technique for the perform-

ance of Division of the Internal Mammary Arteries has been detailed.

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#### References

1. Beck, C. S.: Development of a New Blood Supply to the Heart by Operation, *Ann. Surg.* 102:801, 1935.
2. O'Shaughnessy, L.: Surgical Treatment of Cardiac Ischemia, *Lancet*, 1:185, 1937.
3. Thompson, S. A. and Raisbeck, M. J.: Cardiocardiopexy: The Surgical Treatment of Coronary Arterial Disease by the Establishment of Adhesive Pericarditis, *Ann. Internal Medicine*, 16:495, 1942.
4. Fauteux, M.: Pericoronary Neurectomy Associated with Ligation of Great Coronary Vein in Treatment of Some Forms of Coronary Disease, *Union Medicale du Canada*, 74:424, 1945.
5. Vineberg, A. M.: Development of Anastomoses Between Coronary Vessels and Transplanted Internal Mammary Artery, *J.A.M.A.*, 55:117, 1946.
6. Beck, Claude S.: Revascularization of the Heart, *Ann. Surg.*, 128.4, 854-865, 1948.
7. Battezzati, M.; Tagliaferro, A.; and De Marchi, G.: The Ligation of the Two Internal Mammary Arteries in Disorders of Vascularization of the Myocardium, *Minerva Medica*, 46 (Part II): 1173-1188, 1955.
8. Langer, L.: Die Foramina Theseii im Herzen des Menschen, *Sitzungsberichte Akad. Wissensch., Math.—naturwissensch. Cl., Wien*, 82:25-39, 1880.
9. Gross, L.: *The Blood Supply to the Heart*, New York, Hoeber, 1921.
10. Hudson, C.; Moritz, A.; and Wearn, J.: The Extracardiac Anastomoses of the Coronary Arteries, *J. Experimental Medicine*, 56: 919-925, 1932.
11. Moritz, A.; Hudson, C.; and Orgain, E.: Augmentation of the Extracardiac Anastomoses of the Coronary Arteries Through Pericardial Adhesions, *J. Experimental Medicine*, 56: 927-31, 1932.
12. Beck, C. S.; Tichy, V. L.; and Moritz, A. R.: Production of Collateral Circulation to the Heart, *Proceedings of the Society of Experimental Biology and Medicine*, 32: 759-761, 1935.
13. Glover, R. P. and Davila, J. C. with Kyle, R. H.; Beard, Jr., J. C.; Trout, R. G. and Kitchell, J. R.: Ligation of the Internal Mammary Arteries As a Means of Increasing Blood Supply to the Myocardium. *J. Thoracic Surg.*, in press.
14. Holman, E.: Problems in the Dynamics of Blood Flow: 1. Conditions Controlling Collateral Circulation in the Presence of an Arteriovenous Fistula, Following the Ligation of an Artery, *Surgery*, 26: 889-917, 1949.
15. Brofman, B. L.: Surgical Treatment of Coronary Artery Disease; Medical Management and Evaluation of Results, *Diseases of the Chest*, Vol. 31, No. 3, Pp 253-264, March 1957.

# What is Psychotherapy?

LOUIS F. RITTELMAYER, JR., M. D.\*

"Reassurance and emotional support have been shown to be the most powerful and universally applicable therapy."

—Stewart Wolf, M. D.

Just what is the place of psychotherapy in the care of patients? The etymologic meaning of psychotherapy is healing the soul. Its meaning in modern usage has been expanded to embrace treatment of any disorder by suggestion or the offering of emotional support. So in a sense, it is an almost universally applied technique in the care of patients.

There are two component parts of psychotherapy; one is the expression by the patient of his complaints. All the doctor must do is listen. The second is support by the doctor. The latter is the part that we usually think of when we consider the nature of psychotherapy. But, remember, support can be offered effectively only when we know all the facts. The patient must first tell you his story, then you must examine him, and finally you can treat him. This is routine for all forms of treatment for all types of illness. Psychotherapy is no different. Prematurely reassuring an anxious patient will be totally worthless as support and will very likely cause him to doubt your word. Reassure the patient—but do it sincerely and only when you can do it convincingly.

Many times, people with psychosomatic complaints need little treatment other than the knowledge that their symptoms are psychogenic. They are relieved to know that nothing more serious is present. ("More serious" is a euphemism for cancer frequently used by patients and doctors.) Reassurance for these patients, is definitive treatment.

If the symptoms are annoying or if the organic lesion is potentially dangerous, as in peptic ulcer, it is necessary to treat the lesion before and during the search for specific causes of the emotional disturbance. Even if symptomatic treatment—which should include psychothera-

py—effectively controls the symptoms, it is important to search for the underlying psychic cause. No amount of symptomatic therapy can substitute for finding the source of trouble and bringing it to light.

Most patients with emotional problems can be helped by psychotherapy. By the very nature of their disease, they are poorly equipped to see their problems through without considerable assistance from the physician. However, this assistance cannot come from syringes and pill bottles. Only the physician himself can dispense psychotherapy.

## ALCOHOLISM AND DRUG ADDICTION

Some patients present special problems. Alcoholics and drug addicts are particularly difficult to deal with.

Alcoholics are people who have emotional problems and have chosen alcohol as their vehicle of escape. For them it is not a vehicle at all, it is a trap. To understand alcoholics and to be able to help them, some knowledge of why they become alcoholics is necessary. As a rule they are running from something—from what is not always easy to discover; it may be different for each one.

They are usually poorly adjusted to their environment and to themselves. The reason alcohol never solves their problems is that they can't escape from themselves. The problem of curing the alcoholic centers on one point: helping him to see his problem in its true light, and taking measures to solve it. He must be helped to face it rather than run from it.

It is impossible to help some alcoholics — they refuse to be helped; and physicians have no right to force their assistance on anyone who is sane. If the patient is interested in being cured, however, we should exert every effort to assist him on the difficult road to health and self-respect. The aid of Alcoholics Anonymous can be invaluable to many of these people.

Strictly speaking an addict is a person for whom a drug supplies a physical need. In actual practice, however, most addiction problems involve patients habituated

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to barbiturates or narcotics more from a lack of emotional stability than true physical dependence on the drug.

It is extremely difficult to treat these patients and it should be attempted only in a hospital and with the patient's explicit permission and cooperation. The basic problem is usually one of psychic origin; it is not too different from alcoholism.

An all-too-common cause of addiction is the physician. There is no doubt that many people who take excessive amount of sedatives or narcotics started using the drug on orders from a physician. They may have been given the drug in too large a quantity or for too long a time, and their continued use of it is due, at least in part, to the dependence created by the physician. Certainly, many of them continued taking it for reasons other than medical necessity; but it is nevertheless dangerous to introduce emotionally unstable patients to the stronger sedatives and narcotics.

#### REACTIONS TO ORGANIC DISEASE

A somewhat different problem in management exists in patients whose disease is organic but whose emotional reaction to it is significant.

Many disorders are capable of producing quite severe psychic reaction, and these must be recognized and dealt with. For example, a patient who has had a bowel resection and colostomy has many problems of adjustment to make. In fact, he frequently has to change his living and working habits so drastically that emotional, economic and social problems become more threatening to him than the carcinoma which necessitated the operation. A similar situation, as far as psychic reaction is concerned, applies when a woman has a radical mastectomy.

Less obvious to the doctor, but often causing just as much emotional response in the patient, are much milder conditions than cancer of the bowel or breast. Limb amputations, paralysis following poliomyelitis, and even the cosmetic blemishes of acne vulgaris can elicit severe and disabling emotional problems to complicate the physical disorder.

The management of patients with psychic disturbances secondary to physical diseases must include a vigorous effort to solve as far as possible the physical and the psychic problems. If this is not done, the patient may become disabled more by the complicating emotional disturbance than by the original physical disorder. Psychotherapy is an important and essential feature of the management of these patients.

As a medical student, I was told that the treatment of coronary occlusion was "oxygen and morphine, more oxygen and more morphine." Nothing else, except "complete rest" for four to six weeks. That is fine—but what do you do when the patient complains of gas pains? And how complete is rest when the patient is straining on a bed pan? What about a bedside commode? And what of the inevitable anxiety about the future?

Oxygen and morphine may keep the patient alive and quiet for a few days. Rest may even tide him over the "dangerous first two weeks." If you add anticoagulants and antispasmodics to the treatment, his chances for survival may be still better. The question still remains: what then? How the doctor handles the post-coronary patient is at least as important as how he manages the coronary attack; for rehabilitating patients is as much our responsibility as saving lives.

#### THE NATURE OF PSYCHOTHERAPY

Psychotherapy for sick minds differs from that directed toward patients with primarily organic diseases mainly in degree. We obviously don't need to spend much time healing "by suggestion" if all the patient has is a sore throat. We don't unless he's a professional singer; and if he is, the emotional reaction to his disease is intensified markedly. In that event, we intensify the application of psychotherapy. For the psychosomatic and other neurotic disorders, we must employ it intensively and repeatedly. This must be done also for patients with severe psychic reactions to physical ailments, no matter how minor the physical disorder appears to be.

What then is the nature of psychotherapy? That is hard to say. It is nothing

as concrete as digitalis or even a low calorie diet. The best description I have seen was written by S. J. Meltzer in the JAMA in 1912: "Lighter than air is psychotherapy. Do not practice it consciously; you are training yourself to be a humbug. Have a thorough knowledge of your dealings with your patient so as to gain his confidence; have sincere sympathy with your client which ought to manifest itself without obvious demonstration; be practical in your advice, and talk to the patient and his surrounding in common-

sense terms—and you will have practiced psychotherapy honestly and successfully."

Briefly, then, knowing your patient, being aware of his psychologic as well as his physical needs, combined with a sincere desire to help him regain his health in every way you can, constitute the basis for good therapy. Nothing less is permissible, for nothing less is comprehensive enough to assure maximum success. Psychotherapy, it would seem, is an indispensable ingredient of any method of treatment.



## Carbon Dioxide Narcosis

### A CASE REPORT

JOHN S. GRIFFIN, M. D.

AND

FRANK P. CANTRELL, M. D.\*

Carbon dioxide narcosis is a serious complication of pulmonary disease. This syndrome has been the subject of an increasing number of articles particularly during the past five years. Many of these papers deal with iatrogenic carbon dioxide intoxication resulting from continuous oxygen administration to individuals with marked ventilatory insufficiency. One of the better comprehensive reviews is that of Seeker and Hickman.

The following case is reported to re-emphasize certain of the problems in diagnosis and treatment. We would especially like to stress the central nervous system manifestations of this syndrome.

#### CASE REPORT

F. B. L., a 67 year old white male executive from Columbus, Ohio—admitted to the hospital January 19, 1957.

Informant: Wife. During the month prior to admission the patient had been vacationing on a dude ranch near Tucson, Arizona. This involved a great deal more physical activity than he had been accustomed. On one occasion he rode horse-

back for over 20 miles. Except for excessive fatigue he was considered well until five days prior to admission when his wife noted increasing somnolence during an auto trip East from Tucson. On reaching Texarkana the patient was too lethargic to continue the trip and medical advice was obtained. Additional symptoms at that time were mild cough, productive of small amounts of clear mucoid sputum, headache, mental depression, ankle edema, and mild anterior chest pain aggravated by cough and deep breathing.

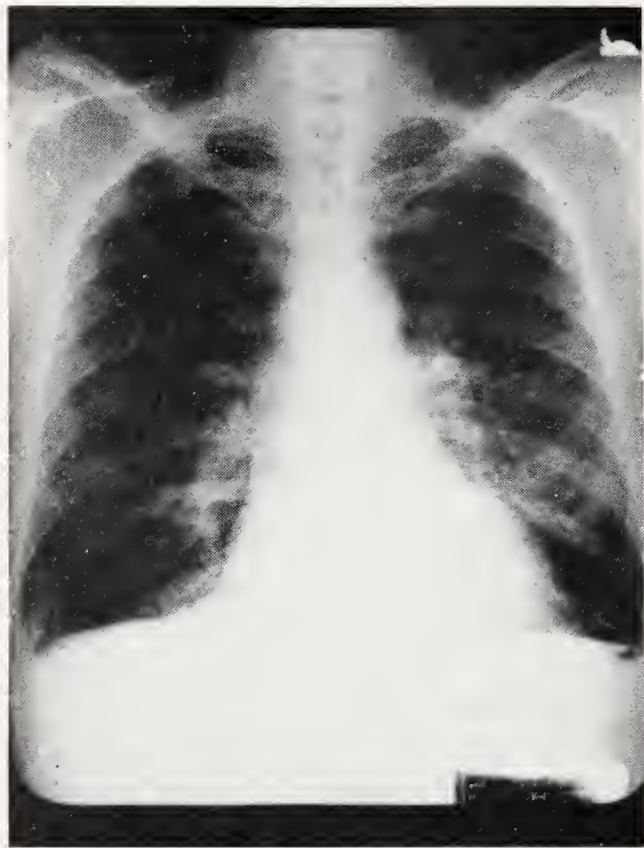
The past history revealed no asthma, allergic, or cardiac diseases. The patient was a heavy smoker using three packages of cigarettes daily for five years and at least two packages daily for thirty-five years. He had consumed moderate amounts of alcohol.

Physical examination at the time of admission revealed a semi-stuporous white male. He could be aroused for brief periods and when awake seemed perfectly rational. Temperature 99.4, pulse 150, respirations 30 and blood pressure 90/70. There was cyanosis of the face and conjunctivae. The neck veins were markedly

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distended at 45 degrees from recumbency. Fundoscopic examination revealed engorged retinal vessels. There was no



obvious airway obstruction. Respirations were shallow with little diaphragmatic motion. Moist rales were audible in both lung bases posteriorly. Breath sounds were distant and an occasional rhonchus was heard. The heart was slightly enlarged to the left with a ventricular rate of 150 per minute. Carotid sinus pressure caused slowing of the rate but on cessation of pressure the original rapid rate was resumed. There were no adventitious sounds. The liver was palpable 4 cm. below the right costal margin. A coarse jerking tremor of both upper extremities was present at rest and during voluntary movement. The deep tendon reflexes were generally hypoactive. Aside from stupor the remainder of the neurological examination was not remarkable. A 1 plus pitting pretibial edema was present.

Admission laboratory data as follows: W. B. C. 14,100 with a normal differential, Hemoglobin 18 grams, Hematocrit 61 per cent, Sedimentation rate 32 mm. The urinalysis was not remarkable—reaction acid. B. U. N. 48 mg. per cent, blood sugar 142 mg. per cent,  $\text{CO}_2$  35.1 milli-

equivalents per liter (78 volumes per cent). E. K. G. revealed sinus tachycardia, right axis deviation and right ventricular strain. Posterior-anterior and lateral films of the chest revealed a relatively large thoracic cage. The diaphragm was depressed and flattened. The heart was enlarged. The cardiac diameters on the frontal roentgenogram were as follows: Long diameter 20 cm., transverse diameter 18 cm., broad diameter 13 cm. The cardiothoracic ratio is 18 divided by 33. The lower half of the lung fields reveal fluffy lobular accumulations of increased density where pulmonary aeration is replaced by pulmonary edema.

*Hospital Course:* Unfortunately the possibility of carbon dioxide narcosis was not initially considered. Treatment consisted of rapid digitalization, diuretics, continuous oxygen and general supportive measures. Within twelve hours the patient had lapsed into deep coma. This untoward reaction to continuous oxygen therapy along with polycythemia, elevated carbon dioxide and acid urine lead to a proper diagnosis of carbon dioxide intoxication. At this juncture we began intermittent oxygen, penicillin, streptomycin, nebulized isuprel, diamox, potassium iodide and aminophylline. The trachea was suctioned with a soft rubber catheter periodically. The patient was aroused and forced to cough at frequent intervals. Several small phlebotomies were performed during the first three hospital days. A Monohan chest respirator was used for four to five hours each day. The patient resisted this apparatus and we felt that it was generally unsatisfactory. Low grade fever was present for the first 72 hours. On the fourth hospital day a lumbar puncture was performed because of continued stupor in spite of vigorous treatment and fall in plasma  $\text{CO}_2$  levels. The cerebrospinal fluid pressure was normal as was the cell count, protein and serology. The first sustained improvement in mental status was noted on the fifth hospital day. From this point recovery was rapid. By January 31, 1957 the patient was ambulant without respiratory distress. Congestive failure had completely abated. The hemoglobin was 16 grams per cent and the hematocrit 57 per cent. Vital capacity was 57 per cent. Aside from

generally diminished breath sounds the lung fields were not particularly remarkable. The patient was discharged to continue his journey home.

#### DISCUSSION

Hypercapnia can result from any condition interfering with ventilatory exchange. It is not uncommonly seen in severe emphysema, pulmonary fibrosis, or pulmonale, and drug induced depression of the respiratory center. In addition prolonged oxygen therapy has induced CO<sub>2</sub> intoxication in individuals with chronic pulmonary disease.

Carbon dioxide retention is normally a stimulus for hyperventilation. With markedly impaired respiratory exchange there is buildup of alveolar carbon dioxide. Finally carbon dioxide levels in blood are sufficiently high to cause direct depression of the respiratory center. This leads to hypoxia. As alveolar hypoventilation becomes more marked the peripheral chemoreceptors take over the responsibility for respiratory drive. The receptors respond primarily to alterations in arterial oxygen tension. Oxygen therapy corrects the anoxia, but results in further respiratory depression and hypercapnia.

Somnolence which ultimately reached coma was the outstanding clinical manifestation in the above case. There was a remarkable paucity of antecedent respiratory symptoms. This lack of history was responsible for the initial confusion relative to the correct diagnosis. The administration of oxygen during the first 12 hospital hours was undoubtedly harmful and seemed to be the major factor in precipitating full blown coma. In retrospect, it seems likely that this individual had relatively asymptomatic obstructive emphysema and chronic bronchitis which precipitously worsened with the advent of heavy exercise at high altitudes. In addition, there was undoubtedly an element of bronchial infection to aid in tipping the balance.

The central nervous system manifestations of this syndrome are striking and deserve special comment. In lesser concentrations carbon dioxide may produce a variety of mental manifestations including depression, anxiety, irritability, somnolence, confusion and delirium. Motor

phenomena are also variable. Some form of tremor is quite common. This patient exhibited almost continuous coarse intermittent jerking of arms and fingers. Clonic movements may occur and generalized convulsions have been noted on several occasions. Often with deep coma there is a generalized flaccid immobility.

The deep tendon reflexes are usually decreased with high grade coma. The pupils are constricted and give impaired reaction to light. The Babinski reflex has been elicited in some cases, but was not present here.

The cerebrospinal pressure is usually elevated. This is thought to be due to cerebral vasodilatation secondary to hypoxia. The retinal vessels are frequently engorged and papilledema has been noted on occasion.

The diagnosis of carbon dioxide intoxication can be readily confirmed in the laboratory. This is best done by measurement of carbon dioxide tension and pH in an arterial blood sample. If these tests are not feasible, the finding of an elevated CO<sub>2</sub> content or combining power with an acid urine is highly suggestive. It must be remembered, however, that severe hypokalemic alkalosis can be associated with an elevated plasma bicarbonate, acid urine and disturbances in consciousness. In addition, many cases of carbon dioxide narcosis associated with chronic pulmonary disease will have compensatory polycythemia.

The most important aspect of treatment is prevention. Oxygen and sedatives must be used judiciously in all individuals with pulmonary insufficiency. Adequate airway must be assured by bronchodilator drugs, expectorants, frequent tracheal suctioning and even bronchoscopic drainage. Occasionally a tracheostomy facilitates mechanical suctioning. Some element of respiratory infection is usually present and vigorous antibiotic therapy may be of great benefit. Heart failure when present is treated in the usual fashion. The use of oxygen deserves special comment. Hypoxia must be corrected for obvious reasons. Two methods of oxygen administration have been suggested. One involves starting with low concentrations of nasal oxygen and gradually building up



over a period of several days. The recommended starting amount is one liter per minute. Another method is to allow the patient out of the oxygen tent for 20 minutes out of every hour. Regardless of what type procedure is used careful observation by hospital personnel during oxygen therapy is mandatory.

Recently considerable success has been achieved with mechanical respirators in treatment of carbon dioxide narcosis. Our patient was placed in a Monohan chest respirator. As often happens, this form of treatment was not particularly successful because the patient in his semi-stuporous state resisted the automatic respiratory mechanism. We feel that the intermittent positive pressure breathing valve (Bennett Apparatus) is much preferable in this type case. This respirator will allow the semi-comatose patient to control the pattern and rate of breathing.

Finally, a word about steroid therapy. Many are now recommending the use of ACTH and Cortisone in seriously ill individuals with carbon dioxide intoxication. The exact mechanism by which they act is unknown. It is thought that steroid therapy probably decreases inflammatory and allergic reactions in the bronchial mucosa, reduces bronchial secretions, mucosal edema, and bronchospasm.

#### SUMMARY

A case of carbon dioxide narcosis is presented. This syndrome is briefly dis-

cussed with emphasis on central nervous system manifestations and treatment.

#### Bibliography

1. Sieker, H. O. and Hickman, J. B.: Carbon Dioxide Intoxication: The Clinical Syndrome, Its Etiology and Management With Particular Reference to the Use of Mechanical Respirators. *Medicine* 35: 389, 1956.
2. Barach, A. L.: Symposium on Inhalational Therapy; Treatment of Anoxia in Clinical Medicine. *Bull. New York Acad. Med.* 26: 370, 1950.
3. Boutourline-Young, H. J. and Whittenberger, J. L.: The Use of Artificial Respiration in Pulmonary Emphysema Accompanied by High Carbon Dioxide Levels. *J. Clin. Invest.* 30: 838, 1951.
4. Cohen, J. E., Carroll, D. G., and Riley, R. L.: Respiratory Acidosis in Patient With Emphysema. *Am. J. Med.* 17: 447, 1954.
5. Comroe, J. H., Jr. Bahnon, E. R., and Coates, E. O., Jr.: Mental Changes Occurring in Chronically Anoxic Patients During Oxygen Therapy, *J.A.M.A.* 143: 1044, 1950.
6. Segal, M. S., Dulfano, M. J., Herschfus, J. A., and Shank, J. A.: Respiratory Acidosis: Pathogenesis and Treatment. *Ann. Allergy* 11: 206, 1953.
7. Stone, D. J., Schwartz, A., Newman, W., Feltman, J. A., and Lovelock, F. J.: Precipitation by Pulmonary Infection of Acute Anoxia, Cardiac Failure and Respiratory Acidosis in Chronic Pulmonary Disease. *Am. J. Med.* 14: 14, 1953.
8. Westlake, E. K., Simpson, T., and Kaye, M.: Carbon Dioxide Narcosis in Emphysema. *Q. J. Med.* 2: 155, 1955.

# ◆ *What's* NEW ◆

## Radiology

JAMES R. MORRISON, M. D.\*

In the sixty years since the discovery of the roentgen-ray we have seen the growth of radiologic diagnosis into a far-reaching medical specialty touching all branches of the practice of medicine. Therapeutic radiology has kept pace with this growth, and now with the added impetus of nuclear medicine there is a wave of expansion and interest, involving all aspects of the specialty, that shows no sign of slackening.

Since the last report on "What's New in Radiology" two years ago, we have seen further improvement in the contrast media used in radiologic diagnosis. Hypaque continues to be the most widely used contrast substance for intravenous pyelography and cerebral angiography, giving excellent contrast with a low percentage of side reactions. The oily suspension of Dionosil has practically replaced the use of Lipiodol in bronchography. The rapid disappearance of the opaque radical of this substance from the lung fields has been one reason for more frequent and repeated bronchography. Pantopaque has now superseded all other contrast substances in myelography and has been found to satisfy practically all requirements. It can and should be removed at the completion of the fluoroscopic procedure. Recent reports of the rare occurrence of pulmonary embolism secondary to Lipiodol and Pantopaque remind us of the more frequent reactions due to contrast media and warn against the indiscriminate use of these substances. Cholografin is now widely used in the intravenous examination of the biliary system. The visualization of the common bile duct and distal hepatic radicles is ordinarily quite satisfactory although the gallbladder shadow is usually not as well seen.

It is interesting to note the high percentage of visualization of most of the common bile duct following cholecystography with Telepaque and a routine post-fatty meal film with this film exposed thirty to forty-five minutes after the fatty meal.

Probably the most outstanding development in equipment in the past few years is the development and continued improvement of fluoroscopic image amplifiers. At the present time most of these units are quite bulky with small viewing screens. These devices offer a means of significantly reducing radiation exposure and at the same time increasing the brightness of the fluoroscopic image. The question arises as to what may be expected in the future with this type of equipment. Work is in progress in a number of laboratories which indicates substantial improvements are forthcoming in the next few years. Much effort is being directed toward the development of electron optical intensifiers with larger field coverage (ten inches or more). Research is also going on regarding the development of television-type detector tubes which are directly sensitive to roentgen-rays as opposed to present-day tubes which operate by light from an external fluorescent screen. At least one major film manufacturer in this country is now making available a new type of x-ray film which is reported to reduce the exposure factors forty to fifty per cent. This, of course, could lead to significant reduction in x-ray exposure.

The development of cineroentgenography, the motion picture roentgen film, has made this process available in many of the larger centers. To date, this has been used primarily in physiologic studies concerning joint movement and cardiovascular contrast examinations along

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with the study of normal gastrointestinal motion, such as the process of deglutition.

Machlett Laboratories with Charles Dotter have described a high tension, switch type of diagnostic tube for use in angiocardiology. This allows exposures as short as 1/1000 of a second during an angiocardigram. By minimizing blurring due to motion, such short exposures improve roentgenographic quality and increase the diagnostic yield. Cardiac valves are well shown with this type of exposure during angiocardiology as is actual turbulence of the blood. Often, jets of nonopaque blood are visualized entering areas seen with contrast media.

Cerebral angiography has become an accepted, commonplace diagnostic aid in the verification of the clinical diagnosis of intracranial aneurysm or arteriovenous fistula, in the demonstration of vascular patterns in angiomatous tumors, in the displacement of the normal position of the branches of the internal carotid artery, and in visualization of a thrombosis of the internal carotid artery. Of perhaps greater importance, it has enabled us not only to diagnose but to locate accurately many intracranial aneurysms. In recent years an increasing number of these extremely dangerous lesions have been either cured by direct surgical attack or the danger of rupture mitigated by carotid ligation.

The process of Xeroradiology has received further attention. This is the process by which a charged plate is exposed to the roentgen beam, and a fine powder is distributed over the surface of the plate with the charge and distribution of the powder particles modified by exposure. This process requires no darkroom, film, chemicals, or water; and the plate may be used again following recharging. The detail obtained with this apparatus is quite good, but the increased exposure time required has limited this method to extremity radiology.

In the field of nuclear medicine there is a staggering volume of literature available. The majority of the radioactive isotopes investigated show little, if any, practical medical use. Several isotopes, however, have found widespread medical usage. Cobalt 60 is probably the best

known isotope to date and is used as a radium substitute. The use of Cobalt 60 in the form of needles, capsules, and special applicators is well established. Clinical experience has shown that Cobalt 60 teletherapy is a useful adjunct to the practice of radiotherapy. Generally speaking, there has been less trouble with skin reactions; field selection and treatment plans have been simpler; and, in many cases, it has been possible to achieve higher tumor doses than with conventional roentgen-rays. As a rule, tumor doses have been approximately ten per cent higher than those with conventional radiation in order to produce the same result. Doses higher than these have led to complications. Cesium 137 has been advocated as a replacement for Cobalt 60 in teletherapy units. Radioactive cesium is a true waste product in every nuclear reactor, and this offers an isotope with large scale production which is cheap in price. Another factor is the long half-life of Cesium 137 compared to Cobalt 60. Certain disadvantages, however, will probably limit the use of this isotope in its present state. These include a low gamma intensity and a low specific activity or radioactivity per given volume.

Portable units utilizing radioactive sources for the radiographic beam have been devised. The isotopes used to date have been Cesium 134, Thulium 170, Xenon 133, and Cerium 144. These sources must be placed in heavy lead housings, and the detail and definition obtained with this type of beam is poor. Exposure times are quite long, and the quality of the beam is fixed due to the radioactive source. This unit offers little for routine diagnostic work but has some potential value for disaster work.

The injection of radioactive gold into the serous cavities continues to be useful in the control of recurrent malignant effusions. This is purely a palliative type of therapy, however. The initial enthusiasm for the injection of radiogold into the carcinomatous prostate gland has waned in recent years. It has been shown that it is practically impossible to sterilize any except the smallest of neoplasms with radioactive gold alone. Elkins at Iowa has reported on the prophylactic injection of radiogold into the peritoneal cavity fol-

lowing surgery for carcinoma of the ovary. Long term follow-up on these patients is not yet available, but the delayed reactions within the peritoneal space have been severe in some cases. Allen and associates have reported excellent results with the parametrial injection of radio-gold in carcinoma of the cervix cases. To date, however, this method has not been widely accepted.

Radioactive phosphorus appears to be the treatment of choice in polycythemia vera, giving prolonged remissions. Radiophosphorus is also used in the treatment of chronic leukemia although it offers no advantages over conventional roentgen therapy.

The use of Iodine 131 is well established in the treatment of hyperthyroidism and the occasional metastatic carcinoma of the thyroid that shows iodine uptake. The partial destruction of the thyroid gland with Iodine 131 in the incapacitated cardiac patient has been reported from several centers. This therapy has been restricted to the cardiac patient with angina pectoris at rest or intractable congestive failure. With a successful lowering of the basal metabolism there is less demand on the diseased heart.

Many additional isotopes have been valuable in the tracer studies concerning normal and abnormal physical and biochemical processes. This particular phase of nuclear medicine will continue to give basic information necessary for the advancement of medicine.

# Bibliography

1. Morgan, Russell H.; Screen Intensification; American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 75, p. 69, Jan. 1956.
2. Dotter, Charles T., and Rogers, T. H.; High Tension Switch Tube for Roentgenography; American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 75, p. 83, Jan. 1956.
3. Oliphant, W. D.; Xeroradiology; British Journal of Radiology, Vol. 28, page 543, Oct. 1955.
4. Burkell, C. C., and Watson, T. A.; Some Observations on the Clinical Effects of Cobalt 60 Telecurie Therapy; American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 76, p. 895, Nov. 1956.
5. Brucer, M.; An Automatic Controlled Pattern Teletherapy Machine; American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 75, p. 49, Jan. 1956.
6. Krebs, A. T., and Kereiakes, J. G.; Portable Isotopic Radiographic Units; American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 76, p. 168, July 1956.
7. Kerr, H. D., Flocks, R. H., Elkins, H. B., Culp, D. and Evans, T. C.; Follow-up Study of One Hundred Cases of Carcinoma of the Prostate Treated With Radioactive Gold; Radiology, Vol. 64, p. 637, May, 1955.
8. Elkins, H. B. and Keettel, W. C.; Radioactive Gold in the Treatment of Ovarian Carcinoma; American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 75, p. 1117, June, 1956.
9. Allen, W. H., Sherman, A. I., and Arneson, A. N.; Further Results Obtained in Treatment of Cancer of the Cervix With Radiogold; American Journal of Obstetrics and Gynecology, Vol. 70, p. 786, Oct., 1955.
10. Blumgart, H. L., Freedberg, A. S. and Kurland, G. S.; Treatment of the Incapacitated Euthyroid Cardiac Patients With Radioactive Iodine; J.A.M.A. Vol. 157, p. 1, Jan. 1955.



**A TEACHING SEMINAR**  
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# Diagnosis of Common Congenital Heart Defects

DOUGLAS HEINER, M. D.\*

Congenital heart disease has assumed an entirely new importance in medicine since 1939 when Gross (1) performed the first corrective operation on a congenital heart defect by successfully ligating a patent ductus arteriosus at Children's Hospital in Boston. Gradually in succession over the past 18 years patients with coarctation, tetralogy of Fallot, pulmonic stenosis, atrial septal defect, and, most recently, ventricular septal defect have been operated upon with satisfactory restoration of function. These six lesions constitute the most commonly seen congenital defects of the heart and account for about 75 per cent of the patients with congenital heart disease who live beyond infancy. The purpose of this paper is to discuss a few of the more important facts and clinical findings which are helpful in the early detection, diagnosis and management of these patients.

## DEFINITION AND INCIDENCE

By definition, congenital heart disease implies a defect of the heart which is present at the time of birth. It should be remembered, however, that such a defect is not always recognizable at birth and as a matter of fact does not cause a murmur during the first few days or weeks of life in the majority of instances.

A few statistics derived from the literature (2-4) indicating the incidence of congenital heart disease may serve to place the subject in its proper prospective. Approximately 5 out of every 1,000 births result in infants with congenital heart defects. More than half of these die within the first year of life so that only about 2 per thousand population at large will be found to have congenital heart disease. One may, therefore, guess roughly what number of patients with

congenital heart disease he might expect to find in a given community. If this figure is applicable to Arkansas, between 3 and 4 thousand persons in the state have congenital cardiac defects at the present time.

The five most common defects not associated with cyanosis each account for from 10 to 15 per cent of cardiac anomalies seen in patients beyond infancy. Together these 5 defects total about 60 per cent of patients encountered with congenital heart disease. These lesions are: patent ductus arteriosus, ventricular septal defect, atrial septal defect, coarctation of the aorta, and isolated pulmonic stenosis. This listing is made in the order of decreasing frequency with which these patients have been seen at the University of Arkansas Medical Center. Another 15 per cent of congenital heart defects encountered beyond infancy will be found to be tetralogy of Fallot, the most common cyanotic heart disease compatible with life. Twenty-five per cent have more complicated congenital heart defects and will not be discussed at this time.

## ETIOLOGY

Not much is known about the etiology of congenital heart defects. However, it has been shown (5-8) that maternal rubella during pregnancy may lead to congenital heart disease in the off-spring as well as to certain other defects including cataracts, deafness, microcephaly, and mental retardation. Recent studies suggest that approximately 15 per cent of women who contract german measles during the first half of pregnancy will give birth to off-spring with congenital defects. Roughly half of these defective infants will have congenital heart disease, which in the majority of instances will be

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a patent ductus arteriosus. Some investigators believe that other viral diseases and even non-infectious insults during the first trimester of pregnancy may lead to the production of congenital heart defects. This is not a recognizable fact, however, with anywhere near the regularity seen in german measles pregnancies. It is also an accepted fact that heredity plays an important part in some instances of congenital heart disease (4, 9). For example, there is one chance in 200 that a random birth will result in an infant with congenital heart disease. Since about 10 per cent of these defects are patent ducti there is about one chance in 2,000 that a given child will have this lesion. Yet if one child has a persistent patent ductus arteriosus the chances of a subsequent sibling having the same cardiac defect are roughly one in fifty, a forty-fold increased risk. Many instances are on record where two or more children in a family have had congenital heart disease, and in the great majority of cases the affected siblings have the same type of heart defect. Thus, if a child is under investigation for an unspecified type of heart disease and his older brother has a ventricular septal defect, the chances are statistically in favor of the younger sibling also having a ventricular septal defect. In a few instances intermarriage seems to play a part in the genesis of congenital heart disease and this further implicates the occasional role of heredity. It must be pointed out that in the majority of patients with congenital heart defects, neither a hereditary factor nor an acquired intra-uterine insult can be incriminated.

#### ASSOCIATED NON CARDIAC DEFECTS

It is of interest that in a few instances it is possible to guess which type of intracardiac defect will be found when a patient has heart disease plus non-cardiac congenital defects. Examples are: 1) mongolism in which the heart disease is frequently of the atrio-ventricularis communis type; 2) Turner's syndrome or ovarian agenesis which is likely to be associated with coarctation of the aorta; 3) Arachnodactyly or Marfan's syndrome which may be associated with atrial septal defects or medial necrosis and aneurysms of the aorta; 4) Situs inversus or

dextro-cardia either of which is likely to be associated with large ventricular septal defects, pulmonary stenosis and sometimes atrioventricularis communis defects; 5) Patients whose birth dates fall between September and March and who have congenital cataracts, hearing difficulties, microcephaly or mental retardation and are small in stature are likely to have a patent ductus arteriosus alone or in combination with pulmonic stenosis. The seasonal occurrence of birth dates in these patients is a result of the striking preponderance of cases of german measles in winter and spring months. Pregnant women as well as the general population in Arkansas have rubella between December and June in more than 95 per cent of instances. Defective infants resulting from these pregnancies usually are born 7 or 8 months later.

#### HISTORY

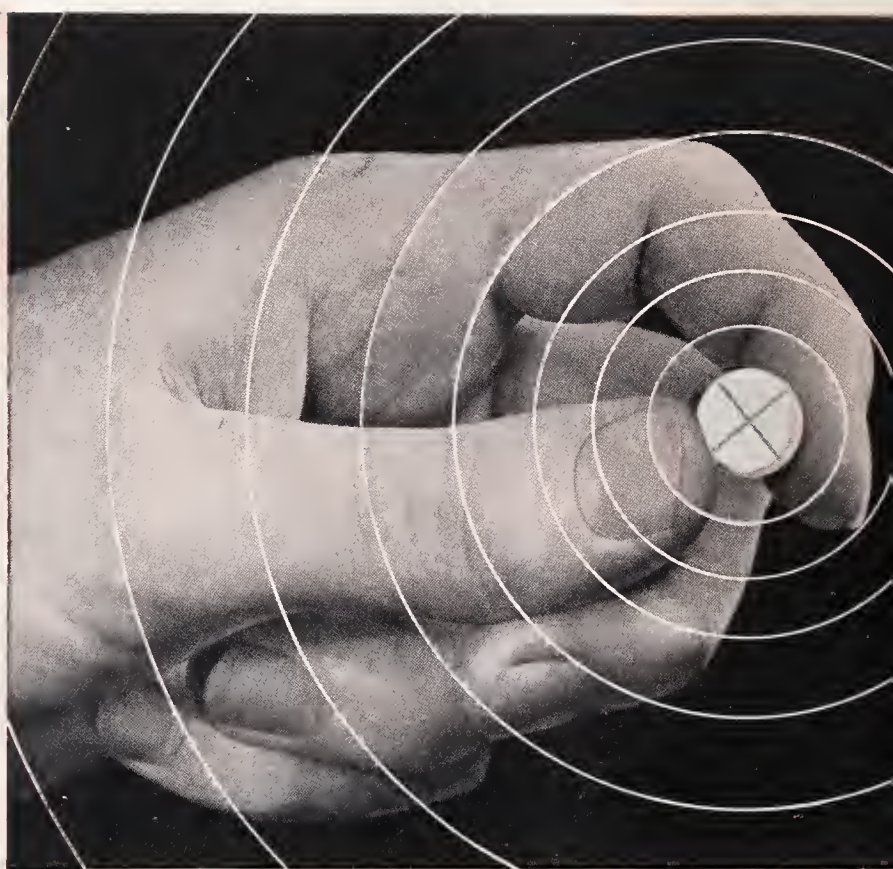
When taking the history from a parent of a child with congenital heart disease, in addition to asking about german measles during pregnancy and the presence of congenital heart disease in other family members or relatives, it is often helpful to inquire when the murmur was first heard. Patients who have pulmonic stenosis or aortic stenosis are likely to have a murmur heard early in the neonatal period and persisting throughout life. Patients with left to right shunts (patent ductus arteriosus, ventricular septal defect and atrial septal defect) are likely to have no murmur for several weeks or months but may have frequent and severe respiratory infections. Patients with tetralogy of Fallot characteristically are cyanotic and squat frequently. This posture is not seen so commonly in other types of heart disease. Any patient with severe congenital heart disease may have retarded development, exercise intolerance and evidences of congestive heart failure. Patients with severe cyanotic heart disease are prone to cyanotic spells in which there is hyperpnea, tachycardia, and intense cyanosis occasionally leading to convulsions and even to death. These episodes demand emergency treatment.

#### PHYSICAL EXAMINATION

On physical examination the presence of a loud or persistent murmur in a young



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**Tablets:**

Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

**Syrup:**

Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

<sup>1</sup>Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK



\*Reg. U. S. Pat. Off.



child should always lead to the suspicion of congenital heart disease. The presence of cyanosis without obvious pulmonary disease likewise should cause one to suspect heart trouble. If there is unmistakably more cyanosis in the fingers than in the toes a diagnosis of transposition with a patent ductus is very likely. In the presence of more cyanosis in the toes than in the hands a diagnosis of pulmonary vascular disease and patent ductus arteriosus may be made. Evidences of congestive heart failure in children usually suggest congenital heart disease if myocardial disease including rheumatic fever can be ruled out by history and appropriate laboratory studies. The most sensitive indicator of congestive failure is the liver size, this organ being very distensible in children. Other helpful but not quite so common manifestations of cardiac failure are tachycardia, cardiomegaly, neck vein distention, rales, rapid or grunting respirations and edema. It is important to remember that edema is one of the latest manifestations of congestive failure in children. Other signs to look for on physical examination are: 1) Precordial chest deformities which are common in patients who have large hearts; 2) a loud booming second heart sound in the second left interspace which is quite a reliable sign of pulmonary hypertension. This accentuated valvular closure is often palpable as well as remarkably loud on auscultation; 3) the presence of a thrill on palpation. This suggests congenital heart disease whenever rheumatic fever can be ruled out; 4) Clubbing of the fingers or toes may be evident before cyanosis is discernible and thus may supply very useful information in classifying the defect.

Special mention should be made of blood pressure determinations in children. There are two main purposes in this procedure. First is to determine the absolute level and to rule out hyper- or hypotension. The second is to rule in or out the presence of coarctation of the aorta. As a general rule physicians find it impractical to take both arm and leg pressures on every patient they examine and thus may leave themselves open to missing an important diagnosis. However, practically all coarctations of the aorta may be picked up if the following rules

are followed: 1) The right radial and right femoral pulses should be palpated simultaneously on every patient who is examined. This procedure takes an average of 10 seconds and will reveal either an absent, delayed, or a weak femoral compared to radial pulse in patients with coarctation. A little practice enables one to recognize the feel of normal radial and femoral pulses and likewise to discover the abnormal deviations mentioned. 2) Blood pressure determinations in the right arm and a leg should be obtained on all patients who have suspected or definite heart disease of any kind or who have suspicious findings on radial and femoral artery palpation. This requires the use of adequately sized cuffs which should cover at least  $\frac{2}{3}$  of the distance between the shoulder and elbow or the hip and knee respectively. 3) If auscultatory blood pressures are impossible to obtain, as in small babies, or uncooperative young children, flush blood pressure may be very helpful. These are performed by placing a blood pressure cuff above the wrist or ankle, elevating the limb in the air and carefully expressing the blood from the palms or soles by compressing the part between two hands. A second physician or nurse then pumps the blood pressure indicator to around 150 mm or mercury. The manual pressure on the hand or foot is released revealing the palm or sole to be blanched. As the pressure indicator is gradually lowered a flush will be seen to appear suddenly on the palmar or plantar surface and the level of the sphingonometer reading recorded at this instant will correspond closely to the mean arterial blood pressure. This maneuver may provide the only means of making a diagnosis of coarctation of the aorta in certain sick patients.

Blood pressure determinations of any kind are generally unreliable in patients who are squirming, straining or crying. It is justifiable to use sedatives when necessary to obtain accurate blood pressure readings in patients with suspicious femoral pulses, hypertension, or undiagnosed heart disease.

#### X-RAYS AND ELECTROCARDIOGRAMS

If after recording the history and physical examination, congenital heart disease

is considered a possibility, chest X-rays should always be obtained. These will immediately indicate the size of the heart, often will determine which cardiac chambers are enlarged and will demonstrate whether or not there is pulmonary vascular engorgement—all very helpful points. Electrocardiograms should also be taken whenever possible since these are often even more reliable than roentgenograms in determining which ventricle or atrium is hypertrophied. They may also indicate the presence or absence of myocarditis or pericarditis and may resolve other problems in the differential diagnosis.

#### PATENT DUCTUS ARTERIOSUS

The major diagnostic finding in this defect is the presence of a continuous or "machinery" murmur heard best in the second left interspace and under the left clavicle. It is important to know that this murmur may be continuous through systole and into only the early part of diastole and still qualify for the designation of a continuous murmur. Many patent ducti show this type of murmur. The detection of a wide pulse pressure (systolic more than 40 mm Hg higher than diastolic pressure) is also an almost constant and very helpful finding. See table I for other usual findings in this defect. In addition, a certain proportion of patients with patent ductus arteriosus (10 to 15 per cent) do not show a continuous murmur. These are called atypical or complicated patent ducti. Almost without exception these patients have a high vascular resistance and a high blood pressure in the pulmonary arterial tree so that there is not sufficient blood flow from the aorta to the pulmonary artery to cause a typical murmur. Such a condition is present at birth when the pulmonary arterial pressure is normally equal to the systemic or aortic pressure. After several days or weeks there is a gradual diminution in pulmonary artery pressure and pulmonary vascular resistance so that by one or two years of age a near normal ratio of pulmonic to aortic pressure is established. This is the reason why a newborn infant with a patent ductus arteriosus does not have a continuous or machinery murmur but one may appear at any time from a month of age to two or three years of age, depending on the rap-

idity of regression of the pulmonary arterial pressure towards adult levels. A few patients seem to have progressive pulmonary vascular disease and pulmonary hypertension which may begin at birth or later in life. When the latter occurs a typical murmur of patent ductus arteriosus may be found to disappear spontaneously. In its place will be a loud booming second sound in the pulmonic area. Concurrently with this development the operative risk markedly increases. A good general rule is that when one hears a booming second sound it is essential that complete studies be done, usually including cardiac catheterization, in order to rule out the presence of a patent ductus arteriosus. Patients with such defects are prone to progress to an inoperable state if they are fortunate enough to not already be beyond the period of safe surgical repair.

#### VENTRICULAR SEPTAL DEFECT

The most impressive physical finding in this lesion is the presence of a thrill and a harsh, blowing systolic murmur, maximal in the fourth left interspace and usually grade IV to V in intensity. This murmur is transmitted more noticeably towards the xyphoid than towards the left clavicle, an important point of difference from the murmur of pulmonic stenosis. In addition there is often a mid-diastolic rumble at the apex. See table I for further details. The statements mentioned under patent ductus arteriosus concerning pulmonary vascular disease and pulmonary hypertension pertain also to ventricular septal defects. When these complications are found the characteristic systolic murmur may become weaker and disappear, the second heart sound becomes loud, and evidences of right ventricular hypertrophy dominate the picture. Operative risk is definitely increased.

#### ATRIAL SEPTAL DEFECTS

Physical examination is more likely to be deceptive here than with many other congenital heart lesions. Probably this is the most frequently missed common congenital defect of the heart. In uncomplicated atrial septal defects the murmur is never very loud and is generally heard best in the pulmonic area, leading to confusion with innocent or functional



murmurs of childhood. The points of diagnostic help in the physical examination are: wide splitting of the second heart sound in the pulmonic area; a hyperactive cardiac impulse on the chest wall which is maximally felt along the lower left sternal border; the soft, systolic murmur heard best in the second left interspace; and a soft, mid-diastolic rumble heard best in the fourth left interspace. See table I for other data.

#### COARCTATION OF THE AORTA

The principal finding in this disease is a difference in blood pressure between the arm and the leg. Pressures may be obtained in accordance with the scheme outlined above under Physical Examination. In general, a consistent elevation of blood pressure in the arm above that found in the leg is significant if it is of more than 10 mm of mercury. Smaller differences in blood pressures favoring the arm over the leg must be carefully demonstrated many times with consistent results in order to allow the diagnosis of coarctation. The right arm should be used instead of the left because a coarctation sometimes arises opposite to, or above, the left subclavian artery.

The majority of patients with coarctation of the aorta have no symptoms during childhood. A small, but nevertheless important, percentage of infants do have congestive failure. For some reason there is a critical period during the first two years of life after which there is usually relative good health until late adolescence or adulthood. Symptoms which may appear later on in childhood are: cramp-like pains in the legs or exertion in a few patients, headache and other evidences of hypertension, exertional fatigue, and occasional non-specific symptoms. Aside from the relative elevation of blood pressure in the upper part of the body, physical examination does not reveal consistently helpful findings. There may be a variety of murmurs heard or none at all. A murmur heard loudest in the back makes one think of coarctation. There may be continuous murmurs caused by collateral vessels. These often are heard best in the back but may be found most anywhere around the chest wall. A short, rough systolic murmur may be heard at

times in the second right interspace or in the suprasternal notch. In some patients there is a high-pitched blowing, early diastolic murmur of aortic regurgitation, and in some there is a mid-diastolic rumble at the apex. Additional details are given in table I. A very useful and helpful radiological finding in children is the discovery of an "E" sign which outlines the site of the coarctation. The dilated pre-and post-constrictive segments produce a double indentation against the esophagus during a barium swallow. This may be seen in early infancy in many instances. Rib-notching is seldom seen in early childhood and generally makes its appearance somewhere between 8 to 12 years of age. Occasionally it may be seen as young as 2 or 3 years of age, yet in some patients may never be seen at all. Another important fact to recognize is that in infancy the pattern of right ventricular hypertrophy on electrocardiograms is common before the age of 6 months, after which left ventricular dominance or hypertrophy is generally found.

#### PULMONIC STENOSIS

The most important and striking physical finding in patients with isolated pulmonic stenosis is the presence of a loud, rough systolic murmur heard best in the second left interspace and transmitting well to the left clavicle, neck and upper back. This murmur is caused by turbulence produced at the narrowed pulmonic valve which partially obstructs the flow of blood from the right ventricle. An almost equally important finding is the diminished intensity of the second heart sound in the pulmonic area caused by imperfect closure of this valve. Other findings are outlined in table I.

#### TETRALOGY OF FALLOT

(pulmonic stenosis, ventricular septal defect, over-riding of the aorta and right ventricular hypertrophy):

Approximately 60 to 70 per cent of patients seen beyond infancy who have cyanotic heart disease will be found to have tetralogy of Fallot. The cardinal findings are the presence of cyanosis and a stenotic or rough systolic murmur heard best in the second to fourth left interspaces; an impulse which is best felt at the lower left sternal border indicating right ven-

tricular hypertrophy; and a second heart sound which sounds sharp or unsplit and is louder along the lower left sternal border than in the second left interspace. Clubbing is seen in the majority of patients. The history is very helpful when it reveals the presence of squatting which occurs almost specifically in patients with tetralogy of Fallot. There are never signs of congestive failure during childhood. An enlarged liver or other evidences of congestion should make one suspect a different diagnosis or an additional disease. Chest X-rays reveal a small or only minimally enlarged heart with a concave pulmonary artery segment often producing a "boot shape" to the heart and very small pulmonary blood vessels giving the impression of clear lung fields. The apex of the heart is often turned upward, due to the right ventricular hypertrophy. Electrocardiograms reveal definite evidence of right ventricular hypertrophy.

#### DISCUSSION

It must be remembered that any of the common congenital heart defects which have been enumerated above may be so mild that evidences of cardiac enlargement or ventricular hypertrophy may not be present either on electrocardiograms or by X-rays. In these instances the defect is usually not threatening to life and is diagnosed chiefly on the basis of the physical findings or with the occasional help of catheterization or angiocardiographic data.

What general disposition should be made of patients once a diagnosis of congenital heart disease is made? It may be well to begin with a consideration of what to do when murmurs are heard in newborn infants. It has been found (10) that less than 10 per cent of patients with murmurs in the newborn period actually end up with congenital heart disease even though many murmurs are quite loud at this time. Frequently the murmur disappears and there is no good indication why it was ever heard. More than 50 per cent of patients with congenital heart disease actually have no murmur at birth. This is because the pressures on the two sides of the heart are approximately equal at birth, and only after a period of days or months does the pulmonary artery pressure diminish suffi-

ciently to allow enough flow of blood from the left side to the right to result in turbulence and the production of a murmur. A murmur in the neonatal period takes on added significance when there is evidence of cardiac enlargement, congestive failure, an abnormal X-ray, abnormal electrocardiographic findings, or symptoms. If none of these things are present, one must be careful not to cause undue concern to the parents since the majority of these infants will be found to have functional murmurs and no heart disease. The decision whether or not to tell parents of the presence of such a murmur depends mostly on the physician's impression of the parents themselves and their likely reaction to this information. A neonatal murmur has added significance if it persists until 6 months of age because approximately 33 per cent of such patients will be found to have congenital heart disease. If the murmur is present throughout the first year of life there is a greater than 50 per cent chance that the patient has congenital heart disease. Therefore, unless there are symptoms or signs of heart disease other than a murmur, one is perfectly justified in waiting for approximately a year before telling the parents that heart disease is probably present. Some parents may be happier if it is initially explained that a murmur is found but that there is no other evidence of heart disease and the chances are that it is a normal murmur of infancy. Conversely, if there are definite cardiac symptoms, pathological findings on cardiac examination, or X-ray and electrocardiographic abnormalities even in the absence of a murmur, this may be considered good evidence of heart disease and the parents should be told about it regardless of the age of the patient.

Beyond one year of age it is probably best to inform parents of the presence of any murmur, relying on the persistence and characteristics of the murmur and the presence or absence of additional findings to indicate whether or not it means significant heart disease. Congestive heart failure always has important implications as do marked abnormalities of the electrocardiogram and chest X-rays. If an accurate diagnosis cannot be made on the basis of these tests, referral for specialized



studies is indicated. Loud murmurs heard in children beyond neonatal age are usually significant murmurs, especially if they are accompanied by thrills. Soft murmurs are frequently insignificant or functional murmurs, especially when located in the pulmonic area. One should be very careful, however, to rule out the presence of anemia, coarctation, atrial septal defect, less common congenital heart lesions, and rheumatic heart disease when such a murmur persists.

In certain instances there is a particular time when it is best to operate on congenital heart defects. It may prove harmful to procrastinate beyond an optimal period. As soon as possible after the diagnosis of a patent ductus arteriosus is established surgery is indicated providing the patient is more than two years old and not beyond middle age. If there are symptoms, or evidences of congestive failure or other complications, the operation may be performed at any age from birth on. A very small percentage of patients will have a clinically evident patent ductus arteriosus that may close spontaneously up to the age of two years. Pulmonic stenosis should be operated upon only when it is severe. This can be determined fairly well by the degree of right ventricular hypertrophy on the electrocardiogram but even more accurately by cardiac catheterization. Coarctations are best repaired between the ages of 8 and 15. However, if there is persistent congestive failure or other symptoms which are not well controlled medically, patients may be operated upon at any age. There is a markedly increased operative risk in middle aged and elderly patients due to a tendency for early arteriosclerotic changes in the aorta with this defect. At present surgery for tetralogy of Fallot is chiefly surgery to relieve the symptoms of anoxia. Therefore, frequent anoxic spells are indications for surgery regardless of age if they are of uncontrolled severity and frequency. Shunt operations connecting the aorta and the pulmonary artery are more likely to be successful if patients are over 3 years of age, so that an effort is made to carry patients along until this age if it does not unduly endanger their lives. If they are doing quite well it often will prove possible to wait until

open heart surgery is advanced sufficiently to permit safe complete correction of the defects. Patients with atrial septal defects and ventricular septal defects may be operated upon any time symptoms are severe or when there is evidence of progressive pulmonary vascular disease which may make operation impossible if delayed. Intracardiac surgery, however, is in its infancy and still carries a relatively high mortality. Therefore, operation also is not recommended on patients with asymptomatic or mild to moderately large atrial defects or ventricular defects at the present time. When open heart surgery becomes a routine procedure many of these patients will safely benefit from repair of their defects.

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TABLE I  
USUAL FINDINGS IN PATIENTS WITH MODERATE TO SEVERE COMMON CONGENITAL HEART DEFECTS

History	PDA	VSD	ASD	COARC	PS	Tet
cyanosis	0	0	0	0	±	+
squatting	0	0	0	0	0	+
exercise intolerance	+	+	+	±	±	++
frequent resp. infec.	+	±	+	0	0	±
malaise or fatigue	±	±	+	0	0	±
Physical Examination						
thrill	+	+	0	±	+	+
apical impulse	+	+	0	+	0	0
LLSB impulse	0	+	+	0	+	+
pulm. 2nd sound	↑	↑	↑	N	↓	↓
sys. murmur	0	LLSB	2LIS	back	2LIS	2-3LIS
dias. murmur	apex	apex	4LIS	rare	0	0
contin. murmur	2LIS	0	0	variable	0	0
congestive failure	com.	com.	rare	occas.	occas.	0
ECG						
RV hypertrophy	0	+	+	0	+	+
LV hypertrophy	+	+	0	+	0	0
atrial hypertrophy	+	±	±	±	+	+
IRBBB	0	+	±	0	0	0
X-Ray						
RV enlargement	0	+	+	0	+	+
RA enlargement	0	±	±	0	+	±
LV enlargement	+	+	0	+	0	0
LA enlargement	+	±	0	+	0	0
Prominent MPA	+	+	+	0	+	0
Pulm. vascularity	↑	↑	↑	N	↓	↓
Key						
RV = right ventricular						
LV = left ventricular						
RA = right atrial						
LA = left atrial						
MPA = main pulmonary artery segment						
IRBBB = incomplete right bundle branch block						
LLSB = lower left sternal border						
2LIS = 2nd left interspace						
4LIS = 4th left interspace						
N = Normal, ± = may or may not occur, ↑ = increased, ↓ = decreased						
PDA = Patent ductus arteriosus						
VSD = ventricular septal defect						
ASD = atrial septal defect						
Coarc = coarctation of the aorta						
PS = pulmonic stenosis						
Tet = Tetralogy of Fallot						

## DIAGNOSIS OF COMMON CONGENITAL HEART DEFECTS

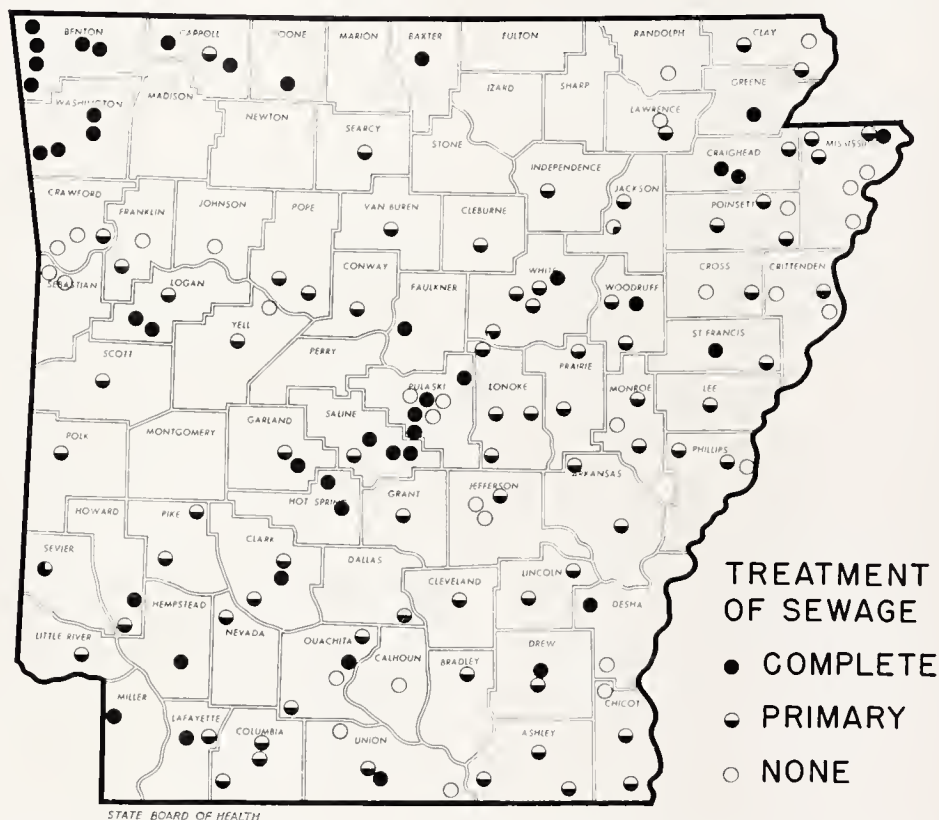
### Bibliography

1. Gross, R. E., and Hubbard, J. P.: Surgical ligation of a patent ductus arteriosus. Report of first successful case. *J.A.M.A.*, 112:729, 1939.
2. Richards, M. R., Merritt, K. K., Samuels, M. H., and Langmann, A. G.: Congenital malformations of the cardiovascular system in a series of 6,053 infants. *Pediatrics*, 15:12, 1955.
3. MacMahon, B., KcKeown, T., and Record, R. G.: The incidence and life expectancy of children with congenital heart disease. *Brit. Heart J.* 15:121, 1953.
4. Nadas, A. S.: *Pediatric Cardiology*, Philadelphia, W. B. Saunders Co., 1957.
5. Gregg, N. M.: Congenital cataract following German measles in mother. *Tr. Ophth. Soc. Australia.* 3:35-49, 1942.
6. Rutstein, D. D., Nickerson, R. J., and Heald, F. P.: Seasonal incidence of patent ductus arteriosus and maternal rubella. *Am. J. Dis. Child.* 84:199, 1953.
7. Heiner, D. C., and Nadas, A. S.: Patent ductus arteriosus associated with pulmonic stenosis. Report of 6 patients showing non-cardiac congenital anomalies. *Circulation*: In press.
8. Murphy, D. P., *Congenital malformations: a study of parental characteristics with special reference to the reproductive process.* Second Ed. Lippincott, 1947.
9. Polani, P. E., and Campbell, M.: An Aetiological study of congenital heart disease. *Ann. Human Genetics*, 19:209, 1955.
10. Richards, M. R., Merritt, K. K., Samuels, M. H., and Langmann, A. G.: Frequency and significance of cardiac murmurs in the first year of life. *Pediatrics*, 15:169, 1955.



# ARKANSAS PUBLIC HEALTH AT A GLANCE

## Sewage Systems\* ARKANSAS PUBLIC SEWAGE SYSTEMS, JULY, 1957



Sewage disposal has become an increasing concern in Arkansas as towns and cities have grown. New industries pose special problems, and some of our major industries have taken the lead in developing adequate industrial waste treatment.

A system of sewers and conduits must ultimately empty its contents into one of nature's drainage ways. If the volume of sewage is small and the body of water is large, there will be enough oxygen available so that the organic matter in the sewage can be broken down aerobically, and no offensive or dangerous local conditions will be created. As the volume of sewage increases, however, it must be specially treated before it is released.

Many forms of treatment are available and used, but they all are designed to accomplish two major steps in treatment: (1) Primary treatment, consisting of simple screening out and settling out of particulate matter. (2) Secondary treatment of the remaining fluid sewage, consisting of biological filtration or other

processes which remove most of the remaining organic material and bacteria thereby reducing health hazards and possibility of causing a nuisance when discharged into rivers or lakes.

Much progress has been made in Arkansas. Nevertheless, the accompanying map shows that quite a number of towns discharge untreated sewage into the water ways. Also the map shows that many more communities are only giving primary treatment to their sewage. These situations will be increasing sources of concern to the medical profession as communities grow, and sources of concern to the entire state as we seek to attract industry and make Arkansas an attractive place in which to live. The federal funds that are becoming available under the Water Pollution Control Act (Public Law 660, 84th Congress) have stimulated many communities to improve their sewage disposal facilities so that a considerable betterment of sewage disposal systems may be looked for in the next few years.

\*Sponsored by the Arkansas State Board of Health.

## A RESOLUTION

On Tuesday, August thirteenth 1957, there was suddenly and prematurely stricken from our midst our associate and friend, Jeff Banks, M. D., Professor and head, department of Gross Anatomy University of Arkansas School of Medicine, and member of this body.

Doctor Banks was born in Johnson, Washington County, on July 2, 1904. He attended the University of Arkansas and received his Doctor of Medicine degree from the University of Arkansas School of Medicine in 1934. In the fall of 1934 he accepted an instructorship on anatomy in the medical school and progressed through the ranks of Assistant Professor, Associate Professor and Professor, becoming Head of the Department of Gross Anatomy in 1957. Thus, Dr. Banks has spent his whole professional life in the School of Medicine, except for one year which was spent in the Department of Anatomy at McGill University, Toronto, Canada. He was a member of the Pulaski County Medical Society and the American Medical Association.

During all these years, relatively short as they were, Doctor Banks gave a full measure of devotion to Anatomy and to the teaching, advice, counsel and admonition of succeeding generations of Medical Students, and received from them an equal degree of respect, admiration and affection. There is no doubt that Doctor Banks made a deeper imprint on the personal and professional lives of the students who studied under him than did any other person.

He was a continuing and active member of this Society, accepting many duties and responsibilities of committee assignments and other activities. He was always ready to serve the interests of the profession to which he belonged.

For these, and many other reasons, therefore be it resolved by the Pulaski County Medical Society in formal assembly on this day—

That the Society has lost a trusted, loyal and beloved friend and fellow member, and that we deeply regret his untimely passing—

That we extend to his beloved wife, Mrs. Karnes Banks, his Sister, Miss Virginia Banks, and his Sister, Mrs. Roy Carder our deep-felt and sincere sympathy,

That we commend and support efforts now being advanced to establish and maintain a suitable memorial to Doctor Banks and—

That a copy of this resolution be spread on the minutes of this Society, a copy be sent to the Arkansas Medical Journal, and that copies be sent to the bereaved family.

### RESOLUTION COMMITTEE

Gilbert O. Dean, M. D.

A. W. McCullough, Ph. D.

W. C. Langston, M. D., CHM.



## A RESOLUTION

The Washington County Medical Society is grieved over the passing of one of our distinguished and beloved members, Dr. E. F. Ellis. The flight of time and the eventualities of life have brought us to an occasion that embodies sadness and tender memories as we pause in our deliberation to pay a tribute of love, reverence, and respect to our brother who has gone beyond the sunset. He has had bestowed upon him many high honors, and his life has been an example of splendid medical attainments and the highest type of citizenship. His dominant aim was to be helpful to his fellow practitioners and bring comfort and relief to mankind; to elevate medical standards and encourage advancement of scientific knowledge. Regardless of circumstances he always stood ready to answer the call of the sick and distressed. Irrespective of race, creed, or position, all who came within the circle of his service and influence received the same care and kind consideration.

We will no longer hear his voice along the corridors of time, but his noble life

and worthy contributions will remain with us a hallowed benediction, and as he may look down upon us from the parapets of paradise, may we strive to emulate the high ideals and noble deeds his life portrayed. He has passed the torch to us, and may we hold it high and illuminate the way to higher and nobler attainments and inspire us to look above the dark valley of the past out upon the golden heights of the future with its hope and opportunity.

We extend to the family our profound and sincere sympathy, and may He, who is the Guardian of our lives and doeth all things well, bestow upon them the kind and tender care that so generously filled to overflowing the days and years of the one who has gone on before us.

Will H. Mack, M. D.

Fount Richardson, M. D. Committee

Read and adopted by the Washington County Medical Society

September 3, 1957

## MEDICARE

FOUNT RICHARDSON, M. D.

We have all been wondering how long and how successfully the Medicare program would perform. Actually, we are still wondering.

When the program was set up to give governmental pay for physicians to take care of the dependents of service people who could not get the same care afforded dependents who live near service installations, Army hospitals, Navy hospitals, etc., we wondered why the Congress took this method; and we are still wondering.

At the time, members of the Arkansas Medical Society and many others, from this and other states (notedly the American Association of Physicians and Surgeons) took particular pains to point out to our members in Congress that this program would be difficult to carry out and more expensive than we could even guess.

We pointed out to the Congress that the good old American way of allowing a man or his family in private life to choose their medical consultant could still be accomplished. How much simpler to pay a soldier or sailor enough so that he had means to care for his family himself! This direct approach was, of course, ignored by the Congress. That body chose to have the dependents of service men and women believe they were getting something for nothing, and set up an expensive structure to run the program.

It has run fairly well, in spite of the fact that no one is completely satisfied. Credit should go to the Major General Paul Robinson, and his staff and advisors, for an all-out attempt for the program to operate as successfully as possible. There are flaws, and two states have refused to enter the program. Another has decided to give it up as a bad job, and Florida has refused to participate after this year. Others are unhappy about one situation or another.

Medicare causes an enormous amount of paper work, because it is necessary to safeguard public funds by setting up a board for processing claims. There are other flaws, too. One physician will be

extremely unhappy because the maximums set by the government is not up to his usual standard, another will find that his fee is lower than the one ordinarily allowed, and step up his usual fee to the new standard. This too, is unfortunate.

Here is a classic example. The American Hospital Association has come up with about the boldest inconsistency of them all. They proposed that the patients under Medicare pay for services given by interns and residents. This service has always been a part of the hospital cost and is paid for in the hospital's remuneration. The separate payment of these physicians in-training would constitute double payment; no private patient gets a bill for the intern's service. In this proposition, the American Hospital Association has lowered its dignity and, by the same act, deprives the patient of any choice of physician. To us, both are regrettable.

The finest medical care in the world comes to those people, millions of them in America, who choose and reward their own physician. They are acting in a free country and as free, independent citizens of that country. Anytime the paymaster steps in between the patient and his doctor — somebody gets a short deal. The patient can only get poorer medicine. The paymaster, under rules of self protection and overhead, has to be supported either by the patient or the physician, and the physician is restricted in his conduct of the case, to just those things he is "allowed" to do. It is a far cry from the medical care that Americans have enjoyed for the last several generations. And someone has to pay the paymaster!

The Congress has spoken, and in error. Only Congress can correct its mistake unless by some considerable stretch of the imagination, physicians through the country would announce that they would no longer recognize any bartering agency, government or otherwise, to come between them and the care of the sick and injured. That, we believe, might do the job.



## Medicine in the News

### Asiatic Flu Vaccine

Dr. R. B. Robins, Secretary of the Ouachita County Medical Society, wired the U. S. Public Health Service at Washington, D. C. asking if the routine intradermal injection of the Asiatic flu vaccine in adults was acceptable protection. Dr. John D. Porterfield, Assistant Surgeon of the General Public Health Service, wired the following answer:

"Effectiveness data on influenza vaccine are derived from 1 cc. subcutaneous injections. Immunological response of intradermal injection not determined by test with this vaccine. Moreover intradermal injection of Asian influenza vaccine more difficult under ordinary conditions. We have recommended therefore that subcutaneous method of administration be employed in general vaccination programs for adults."

### Veterans Administrator Scores Doctors on Medical Care Attitude

Veterans Administrator Harvey Higley has told the American Legion that some medical men now apparently believe that the public is no longer greatly concerned with the veteran and his problems. "And so they no longer hesitate to attack medical care for veterans, with particular reference to those having non-service-connected disabilities." Ten years ago, "there were few who would challenge the legislation, in effect since 1924, which provides that a veteran with a service-connected disability has the right to enter a VA hospital if he cannot pay for the care elsewhere and if the VA has a bed available," he told the Legion Convention in Atlantic City.

His solution: a firm legislative policy on VA hospitalization, something he said he has been seeking for many months. Commented Mr. Higley: "So long as a definite policy is lacking, requests for new and additional beds will receive little if any consideration." He then reiterated his plan for settling on a level of 125,000 authorized beds in VA hospitals.

Mr. Higley said that if the policy is to rule out care of non-service-connected cases, this should be frankly stated so that states, counties and cities may take up the load.

He placed the number of non-service-connected veterans on the waiting list at 22,000 of whom 17,000 are suffering from mental illness. He proposed the closing down of 3,906 unneeded tuberculosis beds and their replacement with 3,300 other beds. New construction would include a 1,000-bed hospital in Gainesville, Fla., which Mr. Higley said he was confident could be staffed "contrary to our situation elsewhere." Other hospital needs: 250-bed addition to hospitals at Coral Gables and Bay Pines, Fla.; a new 300-bed unit in southern Texas, and 500-bed addition in southern California. These last three would be general medical and surgical beds.

Because nearly 5,000 of the mentally ill veterans are in the New York City area, a 500-bed addition at Montrose, N. Y., would be needed at a minimum, according to Mr. Higley.

### Ways and Means Committee Details Plans for Tax Hearings

Nearly four months before it begins hearings, the House Ways and Means Committee has outlined in detail plans for an election-year study of taxation problems. Included on the agenda is the Jenkins-Keogh proposal for tax deferment until retirement of funds paid into annuity plans. The American Medical Association has joined with an inter-professional group, the American Thrift Assembly, in advocating passage of such legislation.

### Folsom Health Aide Lists Medical Needs, Cites Problems of Aged

Secretary Folsom's special assistant for health and medical affairs, Dr. Aims C. McGuinness, has outlined some major health items which may serve as the framework of the administration's health goals for the 1958 session of Congress. In an address in Maine at the dedication of a new chronic disease and rehabilitation facility, Dr. McGuinness made these points:

**Health Aid to the Elderly**—The principles of voluntary insurance should be applied to the prepayment of medical expenses of a higher proportion of elderly people; the administration feels voluntary health insurance can advance this goal most effectively. PHS also plans to develop demonstrations of home-care services, health maintenance clinics and restorative services. (Several bills now in Congress would offer hospitalization to OASI beneficiaries.)

**Hospital Care Costs**—Physicians must constantly ask themselves if they are putting a patient in a hospital when he could be served as well or better on an ambulatory basis. It is essential the problem of rising hospital care costs be solved.

**Rural Health**—In the more rural areas where hospital facilities might not be available at all, the most essential health services could be provided through diagnostic and treatment centers. (Several proposals have been made for Hill-Burton-type grants for clinics separate from hospitals. Under present law diagnostic and treatment centers must be owned by a state, political subdivision or public agency, or by a corporation or association that owns and operates a nonprofit hospital.)

**Hospital Role in Medicine**—General hospitals must broaden their services and achieve greater coordination. The term "hospital care" should include not only bed care but diagnostic service and service to ambulatory patients as well.

**Federal Medical School Aid**—Failure to help meet the needs of medical schools would be the worst kind of false economy. The administration's pending \$225 million program of construction grants would bring classrooms and laboratories much closer to current and projected needs.

### **Hospital Statistics**

The August issue of the *Journal of the American Hospital Association* carries some interesting hospital statistics for the fiscal year ending Sept. 30, 1956.

At the end of that period there were 6,966 hospitals in the continental United

States; 1,607,692 beds; an average daily census of 1,355,792; admissions totaling 22,089,719; assets of \$13,035,068,000; total expenses of \$6,016,859,000; payroll expenses of \$3,948,937,000, and total personnel of 1,374,704.

### **AMA Trustee Dies**

Dr. John H. Fitzgibbon, who served on the AMA Board of Trustees during the turbulent socialized medicine period, 1945-50, died suddenly of a coronary in Portland, Ore., on Wednesday morning, Sept. 4. He was 63 years old.

### **FHA Won't Guarantee Nursing Home Mortgages**

Federal Housing Administration, which has been studying a plan for mortgage loan guarantees for nursing homes, has decided against moving into this field, at least not until the present law is changed. Nursing homes have sought new means for financing in the face of increasing numbers of older people.

### **Hearings Are Scheduled On Federal-State Relations**

Governors of the 48 states along with numerous city officials have been invited to appear before a House Government Operations subcommittee this fall and early winter on the broad question of federal-state relationships and how to effect more economics. A likely subject is the role of governments in health and medicine.

### **PHS Studies Possibility of Closing Four General Hospitals**

Public Health Service, acting at the request of the Budget Bureau, will survey four of its general hospitals to learn whether the patients could receive good care at less cost to the government in military or private hospitals in the areas.

The four hospitals, at Chicago, Detroit, Memphis and Savannah, were selected by the Bureau for the survey. The eight other PHS general hospitals will not be included. The hospitals care for American seamen, Coast Guardsmen, U. S. employees injured in line of duty and some other groups, but not special patients such as lepers and narcotic addicts. Not in-



cluding Alaskans and Indians, who have their own hospitals, PHS is responsible for the health care of 265,000 plus the treatment of on-the-job injuries for about 4,000,000 U. S. employees and employees of U. S. contractors.

## Health Legislation Enacted In 85th Congress

**Doctor Draft Extension (P. L. 85-62)**—Because the doctor draft was set to expire July 1, this was one of the first health measures passed by the 85th Congress. It gives Selective Service authority until July 1, 1959 (when both this amendment and the regular draft expire) to call certain physicians up to age 35 for military service. Only those under age 35 with obligations under the regular draft and who have been deferred for any reason may be called. Defense Department, meanwhile, says it is getting enough medical school graduates as reservists to preclude use of the new law at this time.

**Medical Research (P. L. 85-67)**—Another early enactment was the fiscal 1958 budget for the Department of Health, Education, and Welfare. Congress voted \$2,503,130,381 for all HEW programs, including record high totals for medical research through the National Institutes of Health. Congress can—and in all likelihood will—receive requests from the administration for additional money during the current fiscal year through a deficiency appropriation.

**Vendor Medical Payments (P. L. 85-110)**—This law is intended to resolve some problems arising out of the social security amendments of 1956 with particular reference to vendor medical payments for public assistance recipients. Under P. L. 110, states are given the choice of either (a) using federal funds for vendor medical payments within the \$60 a month per recipient maximum or (b) establishing a single medical vendor payment financed by federal funds which were set by a 1956 law at one-half of \$6 a month per adult and one-half of \$3 per child, to be matched by states. States also can continue to make direct payments to recipients for medical and subsistence expenses.

**Disability Freeze Extension (P. L. 85-109)**—Under this law, a new deadline of July 1, 1958 is established for disabled persons covered under social security to apply for full retroactivity under the disability freeze passed in 1954. Applications filed by next July will allow workers to count the full period of disability provided they were eligible for disability benefits at the time the disability was incurred. After next July 1, any period of disability established for a worker cannot begin earlier than one year before the application is filed.

**Indian & Non-Indian Hospitals (P. L. 85-151)**—At the urging of some Western members of Congress, P. L. 151 was enacted to authorize federal funds to help build non-profit or public hospitals and diagnostic or treatment centers on or near Indian reservations; the extent of federal contribution will be determined by the percentage of care given eligible Indians. The facilities have to agree to care for both Indians and non-Indians.

**Vocational Rehab Traineeships (P. L. 85-198)**—This measure extends from two to three years the maximum period of time over which the federal government can pay for partial financing of traineeships in physical medicine and rehabilitation. It amends the Vocational Rehabilitation Act which was expanded in the 84th Congress.

**Vocational Rehab Planning (P. L. 85-213)**—This amends the Vocational Rehab Act by extending the time federal funds may be used for planning, preparing and initiating expansion of programs in the states. Congress was asked to act when the July 1 deadline approached with considerable unexpended funds on hand.

**Codification Veterans Laws (P. L. 85-56)**—Without making any substantive changes in existing law, this Congress brought into a single code all veterans benefit laws, including those providing for hospital and medical care. Some of the laws date back 30 years.

**Poultry Inspection (P. L. 85-172)**—Under this law, federal inspection of poultry moved in interstate commerce becomes compulsory.

**Military Nurses Incentives (P. L. 85-155)**—In line with earlier efforts to make careers in the military more attractive. Congress passed this law improving career prospects for military nurses by making more and higher ranks available.

### The Month in Washington

**Washington, D. C.**—In the last few years interest has built up in the problems of the older people—how they are to get their bills paid, how to spend their time constructively, what chronic medical conditions are causing them the most trouble. Innumerable national and local conferences have searched for ways to make life more satisfying and healthy for people entering old age, and committees are at work on the problem in thousands of communities.

In this favorable climate, when every device that might help the older citizens is being examined, there is being revived a scheme that met with no success at all when first proposed more than six years ago.

It is a plan for government-paid hospitalization under the Old Age and Survivors' Insurance system.

Here is the argument that is made for it:

People in old age generally have less income than when they were younger, but at the same time they require more medical attention and hospital care. Neither voluntary nor commercial health insurance has been able to offer these people the protection they need. The only solution, sponsors of the plan say, is to get the federal government into the picture.

Opponents of the idea agree that older people are sick more often and generally don't have much money, but they disagree violently with the other arguments. They point out that slowly but surely insurance coverage is being extended to older people at a price they can afford to pay. Most important, hospitalization-at-65 critics maintain that a system like this is in effect national compulsory health insurance under Social Security.

Early this year Reps. Emanuel Celler (D., N. Y.) and John Dingell (D., Mich.) introduced bills on this subject. They

would allow 60 days a year free hospitalization for OASI-covered men 65 and over and women 62 and over. Rep. Kenneth A. Roberts (D., Ala.) offered a similar bill.

Just before the session ended two developments occurred that are evidence the proponents of this system of hospitalization are getting ready to make a real fight for it next year.

First, Rep. Aime J. Forand (D., R. I.) presented a bill that would make extensive liberalizations in the social security program, including creation of a hospitalization that would give free surgical service to the aged program. Some national labor leaders immediately pledged their support to this bill, a not unexpected move as the AFL-CIO is officially behind the general idea.

Then Senator Richard L. Neuberger (D., Oregon) made it plain he, too, wanted the old people to have free in-hospital medical care. The senator said he hadn't firmed up his thoughts, but that he believed the best approach would be something like the Military Dependent Medical Care program (Medicare), making use of Blue Cross or other nonprofit groups. He estimates that a 1 per cent increase in payroll taxes for both employer and employee would meet the extra costs.

Mr. Forand, on the other hand, is specific. He would make all persons receiving OASI retirement benefits eligible and also surviving widows and children, but would not include persons receiving OASI disability payments. He would broaden the time period by allowing 120 days of hospital or nursing home care each year, with hospital stays limited to 60 days.

The Forand measure also has a provision, not contained in most earlier bills for OASI also to pay for in-hospital surgical services certified as necessary by the physician.

Mr. Forand would take no chance of running out of money. He would levy social security payroll taxes on all income up to \$6,000 (present limit \$4,200), and also increase the tax rate a half per cent for employer and employee alike and three-quarters of one per cent for the self-employed.



It is almost certain that these and other similar suggestions will receive serious consideration by Congress next year with passage of a bill much more likely than in 1951 when President Truman and Oscar Ewing first proposed the idea.

### **New Booklet on Cerebral Vascular Disease.**

Public Health Service has issued a new illustrated booklet on diseases of the blood vessels of the brain third ranking cause of death in the United States. The report notes that strokes and other effects of cerebral vascular disease caused an estimated 179,110 deaths in 1956, and that about 2,000,000 persons are incapacitated by such diseases. The booklet shows five ways in which vessel diseases impair the working of the brain, and outlines steps for treatment and rehabilitation. Dr. James Watt, director of the National Heart Institute, which prepared the publication, says: "The booklet encourages a hopeful, constructive attitude by presenting simple, understandable facts about cerebral vascular disease, its causes and effects and what can be done about it. With proper care and treatment, nine out of 10 of its victims can be caught to walk again and three out of 10 can be restored to gainful work." Free copies may be obtained from Heart Information Center, National Heart Institute, Bethesda, 14, Md. Ask for "Cerebral Vascular Disease and Strokes," PHS publication No. 513.

### **UMW Welfare Fund Spent \$59.5 Million for Hospital-Medical Care**

For the 12 months ending last July 1, the United Mine Workers Welfare and Retirement Fund paid out \$59,584,594 to 93,679 beneficiaries for hospital and medical care benefits. This, according to the Fund's annual report, provided 1,631,144 days of hospitalization, and entailed 1,556,111 visits by physicians. Another 885,944 office and out-patient clinic consultations were provided through additional services of specialists. Total Fund expenditures for hospital and medical care was up 25 per cent from the previous year.

### **Oak Ridge Makes Its 100,000th Shipment of Radioisotopes**

The 100,000th shipment of radioisotopes has been made by the Oak Ridge National Laboratory since the Atomic Energy Commission's program of peacetime uses of atomic energy started just over 11 years ago. The first shipment was made to the Barnard Free Skin and Cancer Clinic of St. Louis, Mo., on August 2, 1946; the latest and 100,000th was made August 26 to the University of Iowa, also for medical research use.

### **A.M.A. Prepares Liability Kits**

For use in claims prevention and claims review programs, the American Medical Association's Law Department is making available to each state medical society a packet of materials dealing with medical professional liability. The kit will contain reprints from the Journal of the A.M.A. Medicine and the Law section dealing with such things as statutes of limitation, court decisions and *res ipsa loquitur*. Also enclosed will be the results of an opinion survey and a report on medical professional liability case histories — keyed to each state.

### **U.S. to Observe Medical Education Week in April**

The third annual Medical Education Week, nationwide tribute to the progress of American medical schools, will be promoted during the fourth week in April, 1958, by United States medical schools and the medical profession.

### **Federal Employee Health Insurance**

The Federal government is again considering establishing a large-scale plan for furnishing medical services, but, as an employer contributing to an insurance plan rather than as a provider of services. Nonetheless the plan, if enacted into law, will undoubtedly have widespread effects on the medical profession.

Basically the administration bill, introduced this session, calls for two separate insurance plans — one for basic coverage and one for catastrophic coverage. However, it is a "package deal" — except in special cases, the employee can't get one without the other.

The basic coverage may be provided by any plan, whether service or indemnity, which meets minimum requirements to be established by the Civil Service Commission. Hospitalization coverage is expected to be at least 70 days.

The catastrophic coverage will be provided by the Civil Service Commission and underwritten by one major insurance company, reinsured by others in the health insurance field. In any year, it will provide hospital coverage after 70 days and medical-surgical coverage after the basic coverage plus \$100 has been expended; payment will be 75 per cent of costs, over these minimums, up to \$5,000 in one year and \$10,000 total.

The Federal share of premium costs would be about one-third; for basic coverage, up to \$13 per year for an employee insured alone or \$39 for employee and dependents; up to \$3.25 and \$9.75 for catastrophic coverage. The employee's share would be on a pay-roll deduction basis. Maximum Federal contribution per employee per year for the combined plan would be, therefore, \$48.75.

At age 65 or retirement, basic coverage could be continued, but without Federal contribution to the cost; catastrophic coverage would be continued without cost to the employee.

—Federal Medical Services Newsletter

### VA Workmen's Compensation Care Curtailed

A June 26 release from the Veterans' Administration reports at least a curtailment in care provided for veterans with insured non-service-connected disabilities. The 173 VA hospitals have been instructed to transfer non-service-connected patients "covered by workmens' compensation or other industrial accident insurance" as soon as possible after the patients' entitlement to treatment elsewhere has been established.

—Federal Medical Services Newsletter

### Few Health Bills Passed: Major Measures Wait Action in '58

While the adjourning 85th Congress held hearings on a variety of health and medical subjects, it passed only a handful of these bills that could be considered sig-

nificant. Such major subjects as hospitalization under Social Security, U.S. aid to medical schools and federal employee health insurance hold over until next year, an election year.

Laws enacted earlier this year include a revised doctor draft act, codification of all veterans' benefit laws, amendment of the program for federal payments for medical care of public assistance cases, authorization of federal grants to build hospitals for use of Indians and non-Indians and improvement of career prospects for military nurses. In the last week the President signed bills providing a limited continuation of grants to extend and improve state vocational rehabilitation plans raising the limit on vocational rehabilitation and physical medicine training grants from two to three years, and making federal inspection of poultry compulsory.

The bill for raising pay for physicians and certain others in Veterans Administration was reported out of the House Veterans Affairs Committee, but no further action was taken, as the committee chairman failed to ask the Rules Committee to clear it for a House vote.

### Biological Effects of Radiation Are Still in Dispute

The Joint Atomic Energy Committee, summarizing testimony from expert witnesses in eight days of hearings earlier in the year, concludes that the country's foremost authorities on the subject are far from agreement on (a) the danger to which man already has been subjected through weapons testing, and (b) the effect on man if testing is continued on the present or an enlarged scale.

The Joint committee's report says in part: "There was general agreement (among witnesses) that any amount of radiation, no matter how small the dose, increases the rate of genetic mutation in a population. There was, on the other hand, a difference of opinion as to whether a very small dose of radiation would produce similarly an increased incidence of such somatic (nongenetic) conditions as leukemia or bone cancer, or a decrease in life expectancy . . . There were differences of opinion on how to forecast the



consequences of further testing. The differences hardest to reconcile appear to be those concerning the biological effects of radiation . . . It would appear . . . that the consequences of further testing over the next several generations . . . could constitute a hazard to the world's population. It is very difficult, if not impossible, to forecast with any real precision the number of people that would be affected."

### **The International Society Of Internal Medicine**

Over 1,600 American physicians have joined the International Society of Internal Medicine during the past two months. This equals the number from all the other countries of the world. Thus, with continuing accessions, more than 3,000 will be eligible to attend the Fifth Congress at Philadelphia, April 23-26, 1958. It is anticipated that at least 1,000 American and 400 overseas physicians will be present. Many of the foreign visitors will also attend the Annual Session of the American College of Physicians at Atlantic City and the subsequent meetings of the Society of Clinical Investigation and the Association of American Physicians also at Atlantic City. Some will stay over for the World Gastroenterological Congress and the annual meeting of the American Gastroenterological Association in Washington, D. C., May 24-31. Tours of medical and scientific centers in the Far West, Mid-West, and along the Eastern Seacoast will also be available.

### **Subcommittee Approves Bill For Control of Union Welfare Funds**

Months of hearings on management and union welfare funds — most of which involve some form of health insurance or medical care — have produced one tangible legislative result: approval by a Senate Labor and Public Welfare Subcommittee of a bill aimed at regulating the funds. The subcommittee vote was unanimous, but Senator Allott (R., Colo.) reserved the right to oppose the bill later on the floor. It will be taken up by the full committee in next year's session. The bill resembles an earlier one sponsored by three committee members, Senators Doug-

las, Murray and Ives, except that the Department of Labor rather than the Securities and Exchange Commission would be responsible for administration.

Principal features of the subcommittee's measure:

1. It would apply to all private industry funds, whether run by labor, management or jointly, if the company was engaged in interstate commerce or the agreement covered workers in more than one state. (Firms with fewer than 100 employees wouldn't be covered for two years.)

2. Party or parties operating funds would have to register with the Secretary of Labor, giving description of how fund is operated.

3. Reports would have to be filed with the Secretary, and these reports would be open to the public and beneficiaries; beneficiaries would be entitled to receive on request to the plans' operators summaries of the reports. Financial statements would have to be based on certified data.

4. Heavy penalties are provided for embezzlement or kickbacks.

Hearings by the subcommittee had disclosed evidence of abuses in some of the funds, including misuse of money. A policy statement in the bill notes a "rapid and substantial growth" of employee welfare and pension funds and says that they have become an important factor affecting the stability of employment as well as the continued well-being and security of millions of employees and their dependents. The objective of the bill is to guarantee equitable administration of the funds by giving full publicity to their records.

### **More Lawmakers Interested in Hospitalization of Aged Program**

Although nothing will be done about it this year, more Representatives are giving their support to proposals for hospitalization of the aged, to be financed by Social Security funds. During the week two new bills were introduced on this subject, which is almost certain to receive serious consideration when Congress reconvenes in January.

### U. S. to Observe "Medical Education Week" in April

The third annual Medical Education Week, nationwide tribute to the progress of American medical schools, will be promoted during the fourth week in April by U. S. medical schools and the medical profession.

April 20-26 will be devoted to an all-out effort to create a greater understanding among the public of both the achievements and the problems of medical schools. Each of the sponsoring organizations—the American Medical Association, the Student American Medical Association, the Woman's Auxiliary to the AMA, the Association of American Medical Colleges, the American Medical Education Foundation, and the National Fund for Medical Education—is asking its membership to reserve this week for community and statewide salutes to area medical schools.

### AMA Plans 11th Clinical Meeting

The birthplace of American independence—Philadelphia—will be the scene of the American Medical Association's 11th Clinical Meeting December 3-6. Center of activities will be Convention Hall where scientific exhibits, color television, motion pictures, technical exhibits and scientific lectures will be presented "under one roof." Headquarters for the House of Delegates will be the Bellevue-Stratford Hotel.

## Announcements

### Preliminary Announcement

The London Thyroid Club and the American Goiter Association announce the Fourth International Conference on Goiter will be held in London, England in 1960. Scientific sessions will be held in the Royal College of Surgeons on July 6, 7 and 8, 1960.

### Announcement of the Van Meter Prize Award

The American Goiter Association again offers the Van Meter Prize Award of \$300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thy-

roid gland. The award will be made at the annual meeting of the Association which will be held in the St. Francis Hotel, San Francisco, California, June 17, 18 and 19, 1958, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations, should not exceed 3,000 words in length and must be presented in English. Duplicate typewritten copies, double spaced, should be sent to the Secretary, Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, New York, not later than February 1, 1958. The committee who will review the manuscripts is composed of men well qualified to judge the merits of the competing essays.

### American Board of Obstetrics and Gynecology

The Part I Examinations of the American Board of Obstetrics and Gynecology, are to be held in various parts of the United States and Canada, on Thursday, January 2, 1958, at 2:00 P. M.

## Obituary

Dr. Samuel Presley Junkin, aged 79, a Pulaski County physician for 54 years died Thursday, August 22, 1957. Dr. Junkin was a graduate of the University of Arkansas School of Medicine and did post-graduate work at Tulane University in New Orleans. He practiced for 54 years in rural Pulaski county. Forty years ago he built the Granite Mountain Hospital which he operated. Dr. Junkin had delivered over 3,000 babies and had cared for three generations. In the early years he traveled on horseback. Dr. Junkin was a member of the Arkansas Medical Association, the Pulaski County Medical Association and the American Medical Association. He was a member of the Iron Springs Masonic Lodge. Survivors include his widow, Mrs. Blanche Chenault Junkin; three sons, Chenault Junkin and Presley Junkin, both of Little Rock, Abner Junkin, North Little Rock; two sisters, two grandsons and four granddaughters.



# PERSONALS AND NEWS ITEMS

**Dr. Damon G. Martin**, a native of Adona, Ark., opened offices in the Salem Clinic early in September. Dr. Martin completed his internship at the Medical Center in Little Rock.

The University Medical Center has announced the following appointments: **Dr. Harry J. Clausen** as associate professor of anatomy; **Dr. Robert E. Bowling** as instructor in the Microbiology Department; and **Dr. Robert S. Abernathy** as assistant professor in the Department of Medicine.

Open house was held Sunday, September 8, 1957, at the new wing of the Hot Spring County Memorial Hospital in Malvern. The new wing adds 47 patient beds to the hospital.

The American Medical Education Foundation has received \$994.42. This has been collected through the Woman's Auxiliary. They are due much credit for this splendid showing.

Speaking at the annual meeting of the area physicians in Shreveport, La., was **Dr. Joseph Rosenzweig** of Hot Springs. The meeting was held in September. Dr. Rosenzweig spoke on pediatric problems.

**Dr. James W. Headstream** of Little Rock was one of the out of town speakers for the meeting of the Mississippi Academy of General Practice held in Jackson, Mississippi, September 18th and 19th. The subjects presented were "Bladder Neck Obstruction in Children" and "Office Urology."

**Dr. Ralph Downs** of Fort Smith spoke on "Reno-Colic Fistula" on the scientific program of the Southern Medical Association in Miami, Florida, November 11th-14th.

Now serving as Chief of Psychiatry at Veterans Administration Hospital, Jackson, Miss., is **Dr. Fred Henker**. Dr. Henker is on temporary transfer for one year

from Veterans Administration Hospital, North Little Rock. He has also received an appointment as clinical instructor in psychiatry at University of Mississippi Medical School.

**Dr. J. E. Beasley** of Blytheville will give up his practice to become full-time medical director of the Mississippi County Health Unit.

The Jeff Banks Memorial Student Aid Fund has been established by Arkansas' three largest medical groups in tribute to the late **Dr. Jeff Banks**, who was head of the Gross Anatomy Department at the University of Arkansas Medical School. Dr. Banks died August 13 at the age of 53. The fund has been established by the University of Arkansas Alumni Association's Medical Division, the Arkansas Medical Society and students and faculty of the School of Medicine.

A DeQueen doctor, **Leroy Callahan**, received extensive injuries recently when he was thrown from his jeep when it overturned. Dr. Callahan sustained back injuries, fractured right leg and bruises and abrasions.

## Contributors to the American Medical Education Foundation from the State of Arkansas during August 1957

Woman's Auxiliary to the	
Boone County Medical Society	—\$7.80
Woman's Auxiliary to the Clark	
County Medical Society	—\$50.00
Woman's Auxiliary to the Columbia	
County Medical Society	—\$5.00
Woman's Auxiliary to the Craighead-	
Poinsett County Med. Soc.	—\$50.00
P. Craig, Wyomissing, Pa.	—\$10.00
Woman's Auxiliary to the Crittenden	
County Medical Society	—\$8.00
Franklin County Medical Assistants	\$8.00
Woman's Auxiliary to the Franklin	
County Medical Society	—\$3.00
Woman's Auxiliary to the Garland	
County Medical Society	—\$25.00
Woman's Auxiliary to the Hempstead	
County Medical Society	—\$8.00
Woman's Auxiliary to the Hot Spring	
County Medical Society	—\$5.00

Woman's Auxiliary to the Howard-Pike County Medical Society .....	\$2.00
Woman's Auxiliary to the Independence County Medical Society .....	\$10.00
Woman's Auxiliary to the Jefferson County Medical Society .....	\$42.00
Woman's Auxiliary to the Johnson County Medical Society .....	\$4.00
J. W. Jones, Texarkana .....	\$27.00
Woman's Auxiliary to the Monroe County Medical Society .....	\$2.00
Woman's Auxiliary to the Ouachita County Medical Society .....	\$5.00
Woman's Auxiliary to the Pope-Yell County Medical Society .....	\$10.00
Woman's Auxiliary to the Pulaski County Medical Society .....	\$517.37
Woman's Auxiliary to the Sebastian County Medical Society .....	\$50.00
Woman's Auxiliary to the Sevier County Medical Society .....	\$16.00
Woman's Auxiliary to the Southeast Arkansas Medical Society .....	\$10.00
Woman's Auxiliary to the Union County Medical Society .....	\$99.00
Woman's Auxiliary to the Washington County Medical Society .....	\$20.00
Total .....	\$994.42

## Proceedings of Societies

The Ouachita County Medical Society met in regular monthly dinner session at the Camden Hotel in Camden September 5th with the doctors' medical assistants as special guests of the evening. The principal speaker was Miss Mary Nell Euper of Fort Smith, president of the Arkansas Medical Assistants Society. Also appearing on the program were Dr. James M. Kolb of Clarksville and Mr. Paul Schaefer of Fort Smith.

The Craighead-Poinsett Medical Society met September 4th at the Jonesboro Country Club. A film, "The Doctor Defendant," was shown. This film was prepared under the direction of the A. M. A. Dr. D. H. James of West Memphis discussed "What's New in Pediatrics."

A film, "The Medical Witness," was the theme for a joint meeting August

## New VA Schedule

The Council of the Arkansas Medical Society, at its meeting June 23rd, directed that the Executive Committee negotiate with the Veterans Administration for an increase in fees for Arkansas physicians before renewing the contract with the VA.

The Committee was successful in its negotiations and fees under the new schedule are increased. As in recent years, the Society did not enter into a contract for any inpatient services. Any physician desiring a copy of the Schedule should write the nearest Veterans' Administration Regional Office.

27th of the Arkansas Bar Association and the Pulaski County Medical Association. A panel discussion followed the showing of the film. Edward L. Wright, president of the Arkansas Bar Association, was moderator with Dr. Samuel B. Thompson and Dr. Drew F. Agar, and attorneys Henry E. Spitzberg and John M. Lofton, Jr., as panelists.

The District Medical Society met in a dinner session Wednesday, September 25th at the Camden Hotel, Camden, Ark. Featured speaker was Dr. Frank C. Coleman, Assistant Clinical Professor in the Department of Pathology at the University of Nebraska College of medicine. Dr. Coleman's address was titled "Fatal Infections Observed in Present Day Practice."

## Woman's Auxiliary

The annual fall conference and board meeting of the Woman's Auxiliary of the Arkansas Medical Society was held in the Hotel Sam Peck, Little Rock, September 10, 1957, with Mrs. Jack W. Kennedy, state president, conducting the day-long session.

A panel discussion on "Safety" opened the meeting. Capt. Jack Rhea of the Arkansas State Police was the speaker, and Mrs. Howard Stern was chairman.



Dr. Clyde Rodgers, representing the Arkansas Medical Society, spoke on "Legislation," with Mrs. Paul Gray, state legislative chairman, and Mrs. Hoyt Choate, area chairman, presenting this section of the program.

"Recruitment" was discussed by a panel composed of Mike Kumpuris, physical therapist; Mrs. John Sorenson, occupational therapist; Miss Amelia Mettrailer, medical technologist, and Dean Julia Miller of the School of Nursing, University Medical Center. Mrs. Louis K. Hundley was chairman.

Luncheon speakers included Dr. F. Douglas Lawrason, provost of the School of Medicine; Dr. T. D. Brown, president of the Arkansas Medical Society; Dr. Ben Saltzman and Dr. Louis Hundley. State chairmen and board members held separate sessions following the luncheon.

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## BOOK REVIEWS

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**The Physician Writer's Book.** Richard M. Hewitt, M. D.; Associate Professor of Medical Literature, The Mayo Foundation, Pp. 415. Illustrated. 1957, \$9.00; W. B. Saunders Co., Philadelphia.

Author Hewitt has condensed into this volume his notes and experiences from many year's study and teaching. He suggests first that every medical manuscript be read by the author or an assistant with a definite effort to *misunderstand* the thought implied. This effort to *misunderstand*, he believes, leads to an accuracy and clarity of expression which can come no other way.

The book is a veritable mine of information. It points out good usage and bad forms. It advises the reader where he can find technical help—statistical and editorial. A chapter on "words and phrases" points out the many errors physicians use in both their daily use and in writing, eg. the "runs a fever", "stopped the drug" (the drug is not "stopped", but its administration is!).

Chapters appear on the use of tables, and the use of illustrations. The technical advice given in them is excellent. Detailed directions can be found in every phase of medical writing, the preparation of the bibliography, the contents and uses of the appendix, as well as a list of words to be avoided because of their lack of definite meaning.

The author has produced a guide book for writing, keyed especially for the ear of the occasional medical author, but equally valuable, to the speaker and the writer, whose accuracy and effectiveness depend upon being clearly understood.—F. R.

**1957 Current Therapy.** Howard F. Conn, M. D., Editor, Pp. 731; 1957; \$11.00; W. B. Saunders Company, Philadelphia.

The present form of CURRENT THERAPY has proved so popular that there has been no reason to make a significant change in its concept since its beginning, nine editions ago.

Its advice and guidance in therapeutics is "current" and is complete. The text gives various forms of treatment and evaluates them candidly stating in certain instances that a particular form of therapy is being discarded or supplanted. To the older, standardized forms of treatment, less space is given but these are not slighted. Their historical value is apparent and the text records it. New consulting editors are added as others pass on and the list is composed of some of our finest teachers, both in the United States and abroad.

The form of this ever popular volume continues to be a combination of good judgment, clearly expressed, and of the most modern therapeutic techniques.—F. R.

# TUBERCULOSIS ABSTRACTS\*

Sponsored by  
The Arkansas Tuberculosis Association

By Reginald C. Edson, M.D., F.A.C.P.,  
Industrial Medicine and Surgery,  
March, 1957

These are changing times in tuberculosis. Death rates have fallen sharply and there has been a small but steady decline in incidence rates. New drugs and resection surgery have had so profound an effect that there is danger of over-optimism. Tuberculosis is far from eradicated.

## THE PROBLEM

This year, approximately 50 persons in every 100,000 in the U. S. will develop tuberculosis. In 1955 of 100,000 new patients 75,000 had active disease. There were 15,000 people who died with tuberculosis. During this same year an increase in the number of new cases was reported by 15 states and the District of Columbia—and the District of Columbia and 6 states reported an increase in the number of deaths.

In the New England States in 1955 of 4,000 newly reported cases, 3,500 had active disease. There were 800 people who died with tuberculosis.

## MANAGEMENT

How about the old familiar landmarks in the management of tuberculosis—hospitalization, absolute bed rest, collapse therapy, sputum studies, X-rays, symptoms, exercise, work tolerance, rehabilitation and follow-up?

Active tuberculosis is best managed in the hospital. Absolute bed rest has been modified and is being evaluated under the protective umbrella of drug therapy. We are learning to use the new methods and evaluate the old, retaining whatever of the old that is good and replacing only when we have something better. Drug therapy, blood banks and advances in anesthesiology have contributed to the development of resection surgery. Wedge and segmental resections, lobectomy and pneumonectomy offer the advantage of removal of tuberculous tissue and have largely replaced collapse therapy meas-

● Current drug therapy and resection surgery have created a rapidly changing picture in tuberculosis treatment. More patients are returning to work while on chemotherapy. What effect do these developments have on the patient . . . the follow-up . . . and upon his capacity in industry?

ures, although pneumothorax and pneumoperitoneum are occasionally used, and plombage and thoracoplasty have a limited place in today's surgical procedures.

Drug therapy has cut down on the amount of sputum. In most patients conversion from positive to negative sputum occurs in three or four months. Sputum usually remains negative while the patients are on drugs but may revert to positive when drugs are discontinued. A series of negative sputum examinations on smear, culture and animal inoculations is of less prognostic significance if the patient is on drug therapy than it is after the drugs have been discontinued for three or more months.

Sensitivity studies on positive cultures guide changes in chemotherapy. Proper significance must be placed on "nonvirulent" and "nonpathogenic" acid fast organisms. Sputum examinations and the significance of sputum findings have indeed become complex.

Conventional X-ray examination, aided by body section laminagraphy, helps to determine stability. We still find bacteriological relapse with an unchanged X-ray picture, but today there is also the question of the "sterile cavity". Suffice it to say, cavity or bleb, sterile or non-sterile cavity—we prefer surgical removal when possible.

A feeling of well-being early in the course of recovery is the rule more so today than in the past. Graduated exercise, work tolerance and rehabilitation, like bed rest, are being modified and evaluated. Follow-up after discharge is important for the protection of the patient and for the proper evaluation of today's changing picture of treatment and management.

As for chemotherapy, the search is still on for the nontoxic, inexpensive bactericidal oral drug while today's drugs are used in conjunction with modified rest, supple-



mented by surgery when indicated. Drug therapy is usually used for all active disease. Streptomycin and isonicotinic acid hydrazide are major drugs. Para aminosalicylic acid is the most commonly used minor drug. Pyrezinamide and cycloserine are minor drugs that are more recently available. Because tubercle bacilli, resistant to available drugs have grown out when drugs are used singly—they are used in combination, preferably a major and a minor, keeping one of the majors in reserve. Isonicotinic acid hydrazide and para aminosalicylic acid or streptomycin and para aminosalicylic acid are two such combinations.

Exudative and pneumonic disease tends to resolve more rapidly than fibroid or cavitary disease. Definitive resection surgery properly timed during the course of drug therapy is used for selected cases.

How long the patient should be kept on drug therapy is not known, but it has been found necessary to increase the average time repeatedly. At present, in a general way, one might suggest as a minimum period of time on drug therapy: (a) for minimal pulmonary tuberculosis, a minimum of one year; (b) for advanced pulmonary tuberculosis, a minimum of 18 months; (c) for genitourinary, miliary and meningeal tuberculosis, a minimum of two years. These are minimum periods; drug therapy may be continued indefinitely beyond these minimum periods in the presence of continuing active disease.

#### THE FUTURE

Since the mean hospital stay is decreasing and the duration of drug therapy is increasing, a higher proportion of patients will be returning to work while still on drug therapy. Negative sputum needs to be confirmed when the drugs have been discontinued. Relapse rates under modern treatment are not available for a long enough period of time. However, preliminary trends suggest 8% to 10%, with over half of the relapse occurring within the first year after hospital discharge. Sputum

examinations and X-ray comparisons continue to be the bulwark of follow-up.

#### INDUSTRY AND TUBERCULOSIS

How does this affect industry? The chest X-ray as part of a pre-employment examination gives the physician in industry a permanent and valuable record of the employee and indicates the need for medical investigation with a high degree of accuracy in chest disease. Mass chest X-ray examinations of all employees at stated intervals rounds out the advantages gained by pre-employment examination.

Differential diagnosis and the determination of activity in tuberculosis may be quite simple or extremely complex, and may be most easily carried out in the hospital. The employee who is known to have had active tuberculosis should be under adequate supervision. The patient who is on chemotherapy should have X-ray and sputum studies once a month. Follow-up may be provided by the family physician, by the hospital outpatient department, by the local health department, or by the Medical Department of the industry. The patient should be taught the value of a free exchange of information between these medical teams.

The patient who has had tuberculosis has always been a valuable asset to industry. He has learned to live moderately. He is usually on time, does his work well, and loses below average time for sick leave. The patient who is diagnosed early, treated by today's standards and adequately followed, will have less of a physical handicap than the patient who had tuberculosis 10 or more years ago; and he will, therefore, be an even greater asset to industry.

#### SUMMARY

Tuberculosis is still with us; the death rate has fallen remarkably; the incidence is slowly decreasing; treatment is a rapidly changing picture; adequate follow-up protects the patient and industry; and the patient who has had tuberculosis is a valuable asset to industry.

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### Hemorrhagic Diseases\*

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Hemorrhagic diseases are naturally those that are associated with hemorrhage. The hemorrhagic diseases could be considered forgotten diseases, or in any event I might say that they are a group of "not thought of enough" diseases. During the past ten years considerable amount of research work and study of the mechanisms of coagulation have been carried out. Many interesting factors have been brought to light.

It would be well in discussing any such group of diseases to consider some of the recent discoveries and outline the mechanisms of the processes of coagulation.

Table number one gives the phases of hemostasis following vascular injury, arranged in order. Hemostasis is divided into two groups, the temporary and the permanent. In the temporary group we have; (1) localized vascular constriction, (2) the agglutination and coagulation processes, (3) retraction of the clot. Un-

der the permanent hemostasis one sees the organization of the clot, recanalization of the vessel, and the extension of new endothelial lining. Many of us are quite aware of these processes that take place, but most of us fail to realize the importance of each of these steps and their timing.

In table number two we see a more detailed plan of coagulation. One will notice that we have traveled far since we had the old Howell theory of coagulation, which I believe included thromboplastin, thrombin, fibrin and calcium. Most of the other factors in this table have been added. In studying this table one is impressed with the importance of the platelets. They furnish the serotonin and retractor enzyme. They also furnish the platelet thromboplastic factor which is very important. Then we see again that they furnish a platelet factor, in the formation of thrombin and fibrin. Another function is important and that is the formation of antifibrinolysin. We also no-

\*Presented before the Medical Staff of the Boone County General Hospital, Harrison, Ark., January 8, 1957.  
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Table 1

#### The Physical Phases of Hemostasis

##### A. Temporary Hemostasis

1. Reflex, temporary localized vasoconstriction (slowing of circulation in the vessel wall)

Prolonged vasoconstriction due to release of serotonin.

2. Agglutination of platelets:

Coagulation of blood:

- a. activation of thromboplastin
- b. formation of thrombin
- c. formation of fibrin

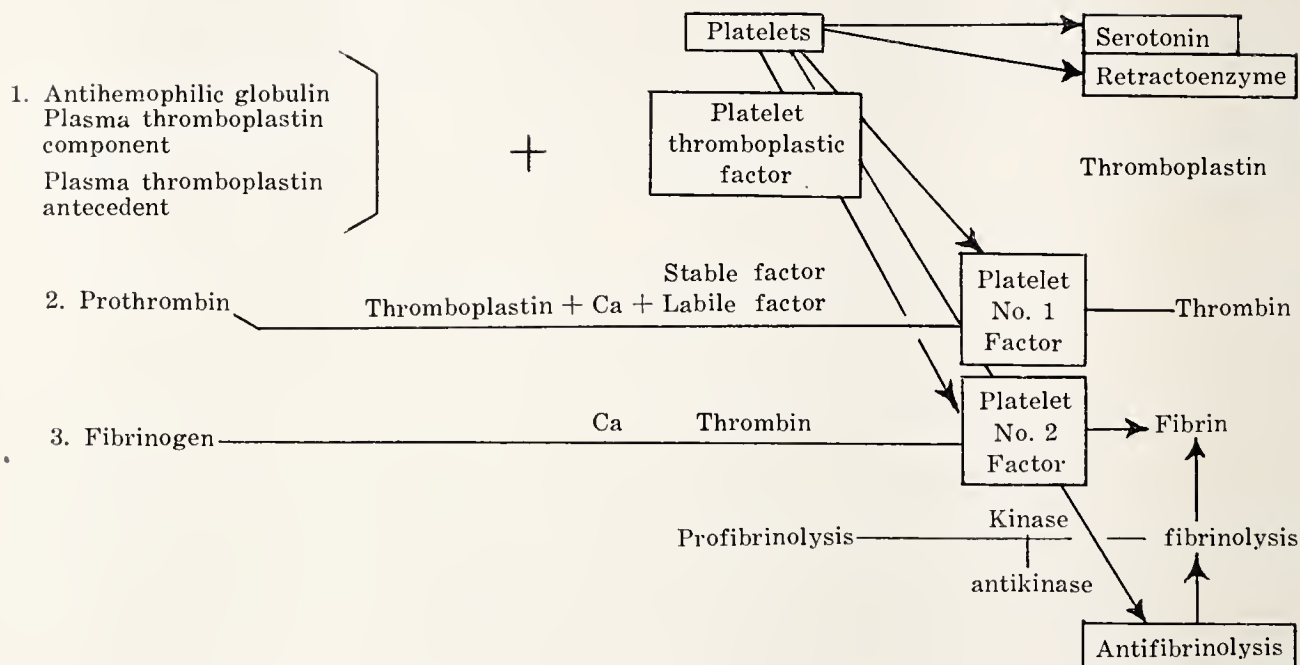
3. Retraction of clot (perhaps lysis of clot)

##### B. Permanent Hemostasis

4. Organization of the clot
5. Recanalization of the vessel and extension of a new endothelial lining.



Table 2



tice in the study of this table that we have three phases of coagulation. Number one is the formation of thromboplastin by the aid of the platelet factor and the antihemophilic globulin, the plasma thromboplastin component and the plasma thromboplastin antecedent.

The number two phase is the formation of thrombin. The prothrombin is acted upon by thromboplastin plus calcium, plus labile factor, plus stable factor and the platelet No. 1 factor. The result is the formation of thrombin.

The number three phase is fibrinogen, acted upon by calcium, platelet factor No. 2 and thrombin, which results in the formation of fibrin. Then we have fibrinolysin which helps in the lysis of the clot and antifibrinolysin which has a tendency to control the fibrinolysis.

The study of this table will be quite important as we take up the different hemorrhagic diseases. We find that the basis of these diseases lies in the impairment of one phase or another in the process of coagulation.

In considering this group of diseases it is quite logical to start with diseases that are the result of vascular impairment. The hemorrhagic diseases of vascular mechanisms depend upon two types of abnormalities. First, increased permeability of the blood vessels, and second, increased fragility of the blood vessels. The

Table 3

Classification of Hemorrhagic Diseases

1. Defects of the Vascular System.
2. The Thrombocytopenic states.
3. Deficiency in Factors of Coagulation.
4. Diseases due to Circulating Anticoagulants.
5. Bleeding Tendency due to Fibrinolysis.
6. The Bleeding Tendency of Obstetric Accidents.
7. Bleeding Tendency of Dysproteinemias.
8. Diseases of Complex Etiology involving many Hemostatic mechanisms.

distinction between the permeability and fragility of the blood vessels is not always well defined. For example, a deficiency of ascorbic acid results in poor synthesis of cement substance of the capillaries and therefore increased permeability of the vascular wall. The capillary fragility will also be increased in this case. In other examples of vascular purpura, increased permeability and fragility of the vessels are associated. The three classes of diseases considered under this heading are; (1) congenital abnormalities of the vascular wall, (2) disease due to increased permeability and (3) diseases due to increased fragility of the vascular wall.

1. Hereditary telangiectasis was first described by Rendu, Osler and others. These diseases are largely hereditary epistaxis and hemoptysis. This disease is a vascular abnormality characterized by thinning out of the capillary bed. This disease may lead to the development of arteriovenous aneurysms, which are usually found in the lung. The disease is transmitted as a simple dominant by

Table 4

## DEFECTS OF THE VASCULAR SYSTEM

Factors	1. Increased Fragility 2. Increased Permeability
Syndromes. Congenital Defects vascular Wall	1. Hereditary Hemorrhagic Telangiectasis 2. Vascular Pseudohemophilia 3. Idiopathic Vascular Abnormalities
Syndromes. Increased Permeability	1. Scurvy
Syndromes. Increased Fragility	1. Purpura simplex 2. Simple easy bruising 3. Senile and cachectic purpura 4. Purpura of diabetes, hypertension, uremia
Syndromes. Allergic reactions, Vascular wall	1. Vascular (anaphylactoid) purpura

both sexes. Epistaxis may be followed by hemoptysis, melena and hematuria.

Diagnostic aids in this condition are; (1) repeated hemorrhages from the same area such as repeated nose bleed, (2) visible telangiectasis and (3) family history of this disease.

Telangiectasis are found not only in the skin (finger tips, toes, ears, trunk, are sites of choice), but are also in the visible mucosae (conjunctivae, tongue, etc.) They may be present in the pharynx, larynx, trachea, stomach, duodenum and vagina. They appear in a variety of shapes and sizes. Some are bright red, others violaceous or purple areas. Some are spider-like areas which fade partially on firm pressure. In rare cases, the spleen is enlarged. Severe hypochromic anemia due to blood loss may be present in cases with epistaxis. The determination of various factors of the blood such as platelets and blood plasma will show no abnormalities in this group of diseases.

Treatment in these cases is difficult. ACTH, cortisone and subcutaneous injections of tiger-snake and moccasin venom are largely ineffective. Protection against local trauma is important. When applicable direct pressure represents the best form of treatment. Electrocoagulation with high voltage current is of little value. Menstrual bleeding may be effected in this disease. The bleeding being most during the secretory phase of the menstrual cycle.

Bleeding in some of these conditions may be quite severe. Unilateral nephrec-

tomy has been done in cases of bleeding of the urinary tract. This is not recommended because it is quite likely that the same conditions may develop in the other kidney. Resection of the intestine has been done in these conditions, but here again, one may resect a portion of the intestine, only to find that in a short period another area may be involved.

## 2. Spiders:

This condition is usually acquired and has been divided into four major groups.

1. Spiders may occur in chronic liver diseases, especially cirrhosis; (2) nutritional deficiencies, particularly pellagra; (3) pregnancy, when spiders may enlarge and increase in number until term; (4) a group of miscellaneous conditions, including Cushing's disease, hyperthyroidism, rheumatic fever and xeroderma pigmentosum. Spiders may occur in the above described disease, hemorrhagic telangiectasia, and it is sometime difficult to differentiate the two conditions. These conditions may be differentiated histologically.

The third group of diseases is vascular pseudohemophilia. This group includes two conditions, one in which there is an abnormality in the size and morphology of platelets. The true name for this condition is thrombocytoasthenia, however most workers consider the true vascular pseudohemophilia as that group of diseases which is associated with continued and prolonged bleeding, on the basis of primary vascular involvement, and there is no abnormal platelet function. This group of diseases is usually congenital and frequently hereditary. The fundamental defect in vascular pseudohemophilia is not clearly understood at the present time. The symptoms of vascular pseudohemophilia are variable in intensity. Spontaneous bleeding is usually limited to epistaxis and hematomas, although in severe cases there may be gastrointestinal and urinary hemorrhage. These patients suffering with this disease may become potential bleeders following minor trauma. Intraarticular bleeding may occur and simulate hemophilic arthrosis. Periarthicular bleeding may also be seen. Menstrual periods are lengthy and profuse.



Table 5

The Thrombocytopenic States
"Idiopathic" Thrombocytopenic Purpura (ITP)
Acute ITP
Chronic ITP
Varieties of ITP (usually acute)
Combined ITP and Auto immune Hemolytic anemia
Hypersplenic Purpura
Congenital and Neonatal Thrombocytopenia
T. P. induced by Drugs
T. P. from excessive Bleeding
T. P. associated with Hemangioma
Qualitative Platelet Deficiencies
Thrombocytoasthenias.

The thrombocytopenic states are conditions which have a common denominator of low platelets. All of these diseases are characterized by a deficiency in the number of platelets.

Table No. 5 gives a list of these diseases which we will consider. They are divided first into two types: megakaryocytic type and amegakaryocytic type. In the megakaryocytic type one sees a large number of megakaryocytes in the bone marrow. In amegakaryocytic disease one will see only a normal or decreased number of megakaryocytes. The examination of the bone marrow is of considerable value in differentiating these two conditions. A clinical division of these diseases consists of acute idiopathic thrombocytopenia, and chronic idiopathic thrombocytopenia.

It can be said that the acute type is usually amegakaryocytic while the chronic type is usually the megakaryocytic type. There are other amegakaryocytic types of this disease which may occur in the leukemias, the aplastic anemias and some types of cancer. One may also see this type following the use of drugs such as bensol, aminopterin, arsenic and sulfa drugs.

The most important problem in connection with this group of diseases is that of differentiating the acute from the chronic type. The acute type is more frequently found in younger individuals. It is characterized by some bleeding in the skin and mucosa. The bleeding may be severe and it may be cerebral in nature in some cases. It may occur in the G. I. tract, pleura or fallopian tubes.

Physical findings are pallor, jaundice and fever. The blood picture usually

shows a rather high percentage of lymphocytes and a few eosinophiles. The white blood count is usually comparatively low and the platelets are decreased. The bleeding time is increased. The clot retraction is usually delayed and a tourniquet test may be positive. The Prothrombin consumption time is delayed. The treatment is usually removal of drugs if it is found that they are the causative factor. Transfusions, preferably of fresh blood are given in some cases that do not respond to other treatment. A splenectomy is usually not advised in this type of case until all other methods of treatment have been given a fair trial. In cases of uncontrollable hemorrhage splenectomy may be done as a last resort.

The disease known as chronic idiopathic thrombocytopenic purpura is more frequently found in adults and is characterized usually by remissions and relapses. There is usually a history of easy bruising. There may be a history of prolonged menses, and bleeding from trauma, small ecchymoses or petechiae and well developed purpura may be seen.

The blood findings: The bleeding time is quite delayed. The clot retraction is definitely delayed and often does not occur at all. Platelets are as a rule very low in this condition and the tourniquet test is usually positive. The bone marrow as has been mentioned above will quite uniformly show an increased number of megakaryocytes.

The etiological factors involved in this condition known as chronic idiopathic thrombocytopenia have been studied to a great extent and there has been considerable research work done along this line. It might be said to date that the problem has not been thoroughly settled. Any theory that may explain the pathogenesis will have to account for three things. 1. Low platelet count, 2. Increased megakaryocytes in the bone marrow and 3. Beneficial effects of splenectomy in the treatment of this condition. It was suggested by Tidy that these conditions should be explained on the basis of destruction of platelets. Perhaps they are used up too rapidly, and there is just a lack of platelets due to over-utilization. This theory

would not explain the beneficial effects of splenectomy.

Damesheks and Miller came along and developed the idea of an inhibiting agent being produced in the spleen which prevented the manufacture of maturing of platelets. This idea is still pretty well accepted and this of course explains the beneficial effects of splenectomy in chronic cases of idiopathic thrombocytopenia purpura.

More recently the idea that some immunological stimulation may be a factor in the cause of these diseases. It has been shown that some bacteriological or allergic agents and possibly some virus agents have produced a condition that is similar to thrombocytopenic purpura. It has been found that there are immune substances formed in chronic thrombocytopenic purpura which causes agglutination of platelets. The survival time of normal platelets when injected into these T. P. I. patients is decreased and the serum of a patient suffering with idiopathic thrombocytopenia injected into normal individuals will cause a lowering of the platelet count. These are some of the facts that form a basis for a theory along immunological lines.

Treatment of the chronic I. P. T. is divided into four groups. 1. The use of steroids such as ACTH and cortisone. 2. The transfusion of blood, preferably fresh blood. 3. Platelet transfusion. 4. Splenectomy.

The third group of diseases which we will cover very briefly are the diseases due to deficiency of factors participating in the blood coagulation mechanisms. We have first the deficiency of coagulation factors. The most frequent disease in this group of course is hemophilia which is most often due to the deficiency of antihemophilic globulin. This disease occurs in males and is inherited through the female. In many cases however there is no definite family history that can be obtained, and it may occur in females.

Hemophilia is characterized by subcutaneous and muscular bleeding. Sometimes bleeding in the joints following minor trauma occurs, and in infants there is ecchymosis and severe bleeding at circumcision may be the first manifestation of

this disease. Minor contusion is followed by rather extensive hematoma and gastrointestinal hemorrhage may occur.

Treatment of this condition consists of periodic fresh transfusions at intervals of a week or so. This type of treatment is often impractical as there are perhaps not sufficient blood bank facilities. There is also the danger of homologous serum jaundice and the danger of developing an antibody against AHG. Also thrombocytopenia may develop. In this disease there is an incomplete development of thromboplastin. This of course results in the improper use of prothrombin a very interesting phenomena which is of some value in the diagnosis of this condition. Sedimentation takes place before the clotting of the blood and there is a clotting of the serum or buffy coat. This may in some cases be removed and the remaining serum will clot again. The clotting time in this condition is prolonged in the majority of cases, and the prothrombin consumption time is greatly reduced, being manifested by the high residual prothrombin in the serum.

(Diseases due to deficient conversion of Prothrombin or Thrombin)

#### "HYPOTHROMBOPENIA"

This disease may result from a deficiency of calcium, stable factor of labile factor as well as a deficiency of prothrombin. The serum calcium is seldom low enough to be considered a factor in this condition. There may be a deficiency of the labile factor or the stable factor. Bleeding in this condition is usually into the skin and the muscle and the mucous membranes. It is possible in a well organized laboratory to determine whether it is a deficiency of prothrombin or whether the labile factor or stable factor are decreased. These are very interesting determinations but cannot be considered in this short paper.

Afibrinogenemia is another condition that belongs to this group of diseases. In these conditions of course there is just a lack of plasma fibrinogen. This may be congenital or acquired. These cases are rare, there being only a small number of authentic cases that have been described to the present time. These cases are due to a lack of fibrinogen and they can be



demonstrated in the blood by adding thrombin and thromboplastin. If no coagulation takes place the result indicates a lack of fibrinogen.

In the treatment of these cases fresh blood may be used as well as fresh blood plasma. There is also a fibrinogen on the market which is quite satisfactory for the treatment of these cases.

#### (HEMORRHAGIC DISEASES DUE TO CIRCULATING ANTICOAGULANTS)

As it was mentioned previously there are several anticoagulants in the blood and diseases of this group show an increase in the anticoagulants. These anticoagulants may act upon the thromboplastin or they may act upon the thrombin or they may act upon the fibrin. The problem in these cases is to try to identify what mechanism of the coagulation is interfered with. This problem is rather a complicated one and is often difficult to properly identify the cause of this condition.

The clinical picture in this group of diseases is that of severe hemorrhagic manifestations which may be groups of large subcutaneous and muscular hematomas. There may be hematuria, hematemesis, melena, and hemoptysis. Considerable bleeding may be experienced from very slight trauma such as a needle puncture.

The administration of ACTH and cortisone offers about the best hope of any methods of treatment. Some of these conditions occur along with pregnancy. Some of these anticoagulants that develop in the course of pregnancy disappear after childbirth or after menopause. Some of these anticoagulants may be passed through the placenta and persist in the newborn's blood for several weeks.

#### BLEEDING CONDITION DUE TO FIBRINOLYSIS

This condition occurs rather infrequently. It is due to the activation of enzymes capable of destroying the fibrin. It may occur in some pathological states. These conditions may be divided into acute and chronic forms. The acute cases being observed in trauma, shock, hemorrhage and burns, etc. Time will not permit me to discuss this type of diseases to any extent. It can be fairly easily diagnosed by study-

ing the nature of the clot. If blood is drawn and allowed to clot, one will notice the separation of the blood cells and the settling of the blood cells to the bottom of the tube, and in severe cases there is rapid lysis, or breaking down of the clot. These findings indicate a fibrinolytic condition.

The first line of treatment in these cases is of course the transfusion of blood. These replace the fibrinogen and often are of great benefit. There is a substance known as antifibrinolysin which will probably be seen on the market in sufficient amounts for the use in the treatment of these conditions. Bleeding tendencies of obstetric accidents can not be considered in this discussion.

#### DISEASES OF HEMORRHAGIC DISEASES OF COMPLEX INVOLVEMENT OF MULTIPLE HEMOSTATIC MECHANISMS

These occur in leukemia, polycythemic states, parenchymal liver diseases, biliary obstruction and bleeding tendencies of epidemic hemorrhagic fever. It is often difficult to determinate the correct etiological factor in these conditions and the treatment is usually the treatment of the primary disease involved.

The following two tables will give some idea of the use of laboratory tests which are quite generally used in all laboratories, and the second table will give some of the products that are used in the treatment of different diseases.

#### Diagnostic Hints

Vascular Defect	
Tourniquet test .....	positive
Bleeding time .....	prolonged
I. T. P., Acute and Chronic	
Tourniquet test .....	positive
Bleeding Time .....	delayed
Clot retraction .....	marked
Platelet .....	low
Hemophilia	
Prothrombin activity of serum	high
Coagulation time .....	delayed
Tourniquet Test .....	plus
Hypoprothrombinemias	
Prothrombin activity of plasma .....	Low
Fibrinopenic states	
Fibrinogen .....	low
Fibrinolysis	
Lysis of clot .....	increased

## HEMORRHAGIC DISEASES

### Treatment Hints

Agent	Indications
1. Whole blood and plasma	All hemorrhagic diseases due to depletion of clotting factors.
2. Serum	PTC, stable factor deficiency, bleeding of severe liver disease.
3. Fraction L fibrinogen plus antihemophilic globulin	Hemophilia, fibrinogen deficiency states
4. Fraction 4	PTC deficiency
5. Prothrombin concentrates	Prothrombin and stable factor deficiency
6. Platelets	Idiopathic and secondary thrombocytopenic purpura
7. Protamine sulfate	Hyperheparinemic states
8. Flavoronoids	Nonthrombocytopenic purpura of exposure to drugs
9. Vitamin K	Hypoprothrombinemia
10. Ascorbic Acid	Purpura of scurvy
11. ACTH and cortisone	Idiopathic and secondary thrombocytopenic purpura
12. Splenectomy	Idiopathic thrombocytopenic purpura
13. Adenochromes	Pseudohemophilia
14. Local therapy	Limited in Value

In conclusion I would like to say that the above discussion of these diseases is not planned to be complete. We have only considered a few of the outstanding diseases and the more frequent hemorrhagic diseases. As I stated in the beginning, I believe that the average doctor does not understand these diseases as well as should be understood, and it is hoped that this

discussion may be challenging, or act as a stimulus for a little further study of these conditions and a little further work in the laboratory and clinical diagnosis and treatment of these diseases.

Reference: Stefanini, Mario, Dameshek, William, the Hemorrhagic Diseases: Grune & Stratton, 1955.



# Hypnotherapy in Psychosomatic Obstetrics and Gynecology\*

WILLIAM S. KROGER, M.D.\*\*

The term "psychosomatic" refers to the interaction and interdependence of emotions and bodily functions in the production of symptoms. It is, in reality, a point of view based upon the fundamental principles of internal medicine and dynamic psychiatry.

General practitioners are well aware that the bulk of their patients suffering from gynecological problems are of a psychosomatic nature. This is not surprising because of the intimate connection between the psyche and the reproduction organs. Hence, if one is to adequately treat these symptoms, a definitive psychological approach is necessary. Such an approach is readily effected by hypnotherapy. All physicians, consciously or unconsciously, are utilizing suggestion to some degree in their relationships with patients. If simple suggestion, embodied in the doctor's art is effective, then more scientifically applied suggestion, in the form of hypnosis, would be more efficacious.

An operational definition of hypnosis is increased susceptibility to suggestion, though our sensory and motor capacities are altered in order to initiate appropriate behavior. Hypnosis is an altered state of perception and awareness which is not analogous to sleep, but is rather a narrowing of attention. This increased ability to concentrate enables suggestions to be followed more readily.

Post-hypnotic suggestions reduce fear, tension and anxiety and in this way, raise the pain threshold. All individuals are susceptible to some degree of hypnosis. About 25 per cent of patients, after sufficient training, can enter the deep, somnambulistic state of hypnosis. This group experience little or no discomfort during labor and delivery. Another 50 per cent can only enter a light or medium stage, and these will require some type of anal-

gesia and anesthesia for their confinement. Of the remaining 25 per cent, hypnosis will be relatively ineffective. Routine obstetrical analgesia and anesthesia will be needed. However, even in this group, the patient's attitude toward her labor is generally a healthy one and she will be well behaved during her labor and delivery.

Our patients are trained in groups and they are informed that hypnosis is not an "either-or" method, but that our sole aim is to cut down on the total amount of analgesia and chemoanesthesia; that should the hypnosis not be wholly effective, analgesia and anesthesia will be made available. It is emphasized that patients are NOT to feel guilty in requesting for help and that hypnosis has greater utility to potentiate chemoanesthesia.

Some of the advantages of hypnosis for labor and delivery are: it reduces fear and tension, and thereby raises the pain threshold. We do not use the word "pain" in our delivery rooms. When we talk about labor pains, we like to use the word "contractions." Simply say, "How are your contractions?" I believe that as long as one says, "How are your pains?" to a patient, this implies that she must of necessity have pains. So we like to use the word "contractions."

The advantages to mother and baby of lessened analgesia and anesthesia are obvious. 1. It is a time-saving procedure. 2. A higher percentage of patients go into deeper hypnotic states because of the *esprit de corps* and confidence obtained from patients who have successfully delivered under hypnosis. 3. Hypnosis does not alter the normal mechanism of labor and is particularly useful during the expulsive stage. The patient can "bear down" when necessary. 4. The first stage of labor is shortened about two hours in primipara and about 3 hours in multipara.

Some of the disadvantages of hypnosis in obstetrics are the added time needed for prenatal conditioning — one has to

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spend anywhere from 5 minutes to a half hour at the initial session; of course, after you have once hypnotized a patient, then she will enter into a hypnotic state very readily within a matter of seconds. You can place her in another room and then see other patients. You have to be at the hospital with the patient, and this does not hurt either, because your presence is equivalent to a half a grain of morphine and will be extremely conducive to relaxation.

Unfortunately, not all patients will go deep enough for surgical anesthesia. Also, the responses to the various types of hypnotic techniques are affected by psychosocial factors; many times we have prepared a patient carefully and thought that she would go through labor without the need for an anesthetic. She then talks to some woman over the back fence and the other woman says, "How can you go for this hocus-pocus," etc. This undoes all the good work that has been done. Or, often I bring a patient who has been carefully prepared into a labor room, and she sees other women in various stages of labor, screaming, etc. This is a very powerful suggestion and upsets her. I believe that our present hospital set-up is barbaric. I think that all women should be entitled to their own labor rooms. I also feel that the extra time that we can devote to these patients, even if it does take a half hour or an hour, is valuable because there is no price that is too high to pay for healthier, happier babies.

One disadvantage that I'd like to emphasize is that hypnosis must not be used in severely disturbed patients. This does not mean that you cannot treat a psychotic with hypnotic techniques. But before you treat anybody who is very disturbed with hypnosis, you must know how to deal with unconscious material; you must have a good knowledge of psychiatric techniques. This admonition applies to all phases of medicine and dentistry because if a "crack-pot" comes into your office, you must be very careful, even if you're using non-hypnotic techniques. It is possible to be blamed regardless of what you do.

Hypnosis is an extension of the natural childbirth method and is applicable to a larger percentage of women.

Hypnosis is almost a specific in nausea and vomiting in pregnancy. Our results, as well as others, indicate that about 90 per cent of the cases can be relieved through hypnosis. The appetite can be controlled by posthypnotic suggestion during pregnancy, thereby cutting down on the patient's weight gain. Hypnosis also can reduce the hypertension associated with pre-eclampsia. This condition is considered to be a stress disease.

Heartburn and salivation respond remarkably well to hypnotherapeutic techniques. With reference to lactation, every obstetrician is well aware that a full breast does not necessarily lactate, and that the flow of milk is under the control of the higher centers. Women who have an apparently ample milk supply often cannot nurse their babies. There is a willingness or unwillingness to nurse. This is not surprising, since the anterior pituitary, which is under direct control of the higher brain centers, liberates the lactogenic hormone which is responsible for milk production. If inhibition of this hormone occurs as a result of emotional processes, lactation will not ensue.

Hypnoanesthesia has been found to be useful as an adjunct for any type of chemoaesthesia for gynecological surgery. It is to be emphasized that hypnosis is never going to be a substitute for chemoanesthesia, since less than 10 per cent of selected individuals go deep enough for surgical anesthesia. However, hypnosis can reduce the preoperative fear and tension and thus facilitate a smooth anesthesia induction. Furthermore, anoxia, associated with tension, is reduced or eliminated entirely. The need for respiratory depressing drugs can be eliminated. Postoperative nausea, vomiting, pain, insomnia and control of bladder function can also be helped by hypnosis. The gag and cough reflex can be controlled through hypnosis, thus preventing atelectasis and pneumonitis.

Hypnosis, when combined with dynamic psychiatric techniques, is a valuable method for treating frigidity. This symptom is so common in our culture that we have dubbed it "the emotional plague." Dyspareunia due to vaginismus is another form of frigidity consisting of spasm of



the vagina muscle. This condition is not uncommon — many women go through their entire married life never having had intercourse because of spasm of the vaginal muscles. This condition responds to hypnotherapy. It should be emphasized that one must get at the root causes of the condition, that is, find out why this particular is used as a defense, or what she is defending herself against. Hypnotherapy is valuable, likewise, in the functional menstrual disorders, as amenorrhea pseudocyesis, dysmenorrhea, hypermenorrhea, and premenstrual tension and menstrual migraine headaches. Pseudocyesis, or false pregnancy, is the most interesting condition seen in all of medicine. Here a woman believes or imagines that she thinks she is pregnant and tricked her automatic nervous system into manifesting the signs and symptoms of pregnancy: the cervix gets soft, the breasts enlarge, colostrum will even be excreted, and the abdomen enlarges. These women have even gone into labor and the obstetrician has waited for the "baby." There is an interesting story about one woman who had pseudocyesis for 18 years. The doctor told her that if she still thought that she had a baby inside her abdomen, she'd better get a tutor for her unborn child.

Functional low back and pelvic pain can also respond to suggestive therapy. It may be used as a means of differential diagnosis to establish that the pain is psychogenic in origin. Likewise in psychogenic pruritis vulvae, hypnoanalysis can readily cure this intractable condition. For symptomatic removal, hypnotic suggestion often gives relief and this motivates the patient for further treatment.

In the menopause, or change of life, the vasomotor symptoms or the hot flashes are partially due to psychological factors. There have been a spate of articles emphasizing that the so-called change of life is characteristic of a certain segment of American society; that the hot flashes often will respond to phenobarbital and reassurance. If the symptom responds to phenobarbital and reassurance, it certainly can be alleviated by suggestion. There is correlation between the amount of available blood estrogens and the severity of hot flashes. Those women who

have the worst hot flashes may have an adequate hormone level, as evidenced by cornification of the vaginal smears. Those with no cornification often have no vasomotor symptoms. As a matter of fact, women up to 80 or 90 secrete small amounts of estrogens. After the ovaries atrophy, the adrenal glands produce adrenal estrogens and androgens long after the ovaries atrophy.

I have used hypnosis for a dilatation and curettage, for biopsy of cervix and also for culdoscopy. I recently saw a remarkable picture made by two investigators from South America who took pictures of the fallopian tubes through a culdoscope. They showed that the tubes were in a continual state of spasm in nervous and tense infertile individuals. After they hypnotized these patients, the tubes relaxed. This indicates that many patients who are supposedly sterile, can have tubal spasm, especially if they are in a constant state of excitement; the sperms can never meet the egg. I have, much to my chagrin, told these patients that "you can't get pregnant."

Hypnosis can be used for relief of pain in advanced carcinoma. Butler, from Columbia University, had a very interesting paper on the relief of intractable pain in the patient dying of carcinoma. He took a small series of patients, all of whom were on large doses of opiates; they were going to have lobotomies, cordotomies, and posterior rhizotomies performed for relief of the pain. He hypnotized these patients and was able to carry most of these patients along until they died without the use of sedation or opiates.

Hypnosis can be valuable in differentiating between functional and organic conditions; also in psychotherapy. Some of the miscellaneous uses of hypnosis are: if you have a fat, obese patient, or a tense individual, and you can't examine her, and you would like to feel her uterus, you can hypnotize her prior to the examination and she will relax just as she will under anesthesia. Hypnosis can also be used to relax the tubes during hysterosalpinography.

Since hypnosis is a multifaceted tool, its utility could be broadened if it were used more often in conjunction with recognized procedures.

# General Principles of Management in Injuries of the Eye\*

WILLIAM B. CLARK, M.D.\*\*

In this era in which we are living, in which all of life has become mechanized and the shadow of thermonuclear warfare is over us all, all injuries must be faced realistically. That means, first of all, the realization that all injuries may be multiple. It is true that in civil practice today many injuries of the eye are still unassociated with other injuries, but you will understand, I am sure, why I begin this presentation with some remarks on the patient with multiple injuries, in whom the wound of the eye is simply one part of the larger picture.

A patient in shock, with one or more traumatic amputations, with rupture of an abdominal viscus, with a crushing injury of the chest, with a severed spinal cord, may also have an injury of the eye, but it would be the worst sort of surgical judgment to give the eyes very much attention until the other injuries are cared for as well as circumstances will permit. This does not, of course, mean immediate definitive care of these injuries. Very often it may merely mean keeping the patient alive until he can be transported to some area in which facilities and personnel are available for such care.

In short, the whole principle of the management of patients with multiple injuries is to put first things first. Paradoxical though it may be for an ophthalmologist to say it, the care of injuries of the eye is not among the first things. The first consideration in any serious accident, civilian, military, or of the mass-disaster type, is to help the casualty to survive. Preserving his sight is a secondary consideration in these circumstances. In fact, the function of an ophthalmologist who attends a patient with multiple injuries in the event of a mass disaster may be to help him to stay alive.

## INITIAL MANAGEMENT

The situation in respect to the eyes is not as bleak as these remarks might sug-

gest. There is safety in delay in the management of ocular injuries, particularly intraocular foreign bodies. In World War II, this principle was thoroughly learned. Directives forbade any attempt at definitive treatment until the casualty had reached an installation equipped and staffed to render skilled care. Ophthalmologists were not attached to forward installations. The first aid men who brought wounded soldiers off the battlefield were taught that their task was to cleanse the eyes superficially, protect them from further trauma, and get the casualties to a medical officer as promptly as possible. Medical officers in forward installations had similarly limited instructions: Their task was to make a diagnosis as best they could, apply such emergency treatment as would render the patient transportable, and speed him on his way to the rear. When he reached a general hospital in the communications zone, where ophthalmologists were on the staff, definitive treatment could be undertaken.

There were sound medicomilitary reasons for the establishment of this policy in World War II. There are equally sound reasons for the application of the same principles in civilian practice. One of the soundest is that the primary operation in ophthalmologic surgery is practically always the definitive operation. There is seldom a second chance. Surgery on the eye requires special equipment, including special lighting. It does not lend itself to improvisations and makeshift measures. It cannot be done by physicians without special training without serious risk to the sight. Except in almost inconceivable circumstances, therefore, the physician without such training should leave everything beyond first aid to be carried out by the trained ophthalmologist.

As for enucleation, it is hard to conceive of circumstances, no matter how grave the accident, in which the decision to perform this most final of all operations on the eye should be made by any-

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one but an ophthalmologist. This is never an emergency procedure. Panophthalmitis and endophthalmitis are dreaded possibilities in all cases, it is true, but they can usually be prevented, and they can sometimes be controlled, by one or another of the wide range of antibiotics now available. Sympathetic ophthalmia, at least in a major form, is not at all common, as the experience of World War II proved. Furthermore, it does not become a problem until 12 to 14 days after the injury, by which time the patient will almost certainly have come under the care of an ophthalmologist. The deferred and calculated risk implicit in leaving a wounded eye in situ is therefore a risk that is thoroughly justified and is, in fact, considerably less than the risk inherent in enucleation of the eye by non-ophthalmologic personnel.

The initial care of a patient with any injury of the eye should be based upon this reasoning. Most of the instructions given to first-aid workers about the emergency care of the eyes can profitably be forgotten. They should limit their activities to essential first aid and adjunct measures. Thereafter, they should refrain from activities that may do harm. Even a physician, if he is not trained in ophthalmology, should do little more than bandage the eyes, preferably with a binocular bandage, applied so tightly over sterile pads that the upper lid is held in place and winking is prevented. A bandage which does not accomplish this result is actually harmful.

The physician who first sees a patient with an intraocular injury under circumstances which permit any sort of examination and treatment other than the simple first aid measures described should make it his business to protect the injured eye against further damage. If the patient is unconscious and cannot keep his eyes closed, the lids may be brought together by placing sutures through the skin and subcutaneous tissues of the upper and lower lids, next to the lash edge, and tying them. An even simpler method is to place a suture through the skin of the upper lid, draw the eyelid down, and anchor the free end of the suture to the cheek with adhesive. If the upper lid

is injured or missing, the process is reversed.

In the past, the most popular method of protecting a damaged eyeball until definitive surgery could be done was by creation of a dissected conjunctival flap. The objective was entirely correct, but the technique often did additional harm by adding to the original trauma. A very satisfactory alternative technique was devised by Haik during World War II: The eye is protected merely by suturing together conjunctival folds from the upper and lower fornices, the leeway of the conjunctiva in these areas being sufficient to permit suture without tension. This fornix flap is therefore readily and quickly created. It furnishes excellent protection for the globe, and it avoids one of the chief objectives to the classical conjunctival flap, the creation of additional trauma. Because there are no raw surfaces, adhesions do not form between the flap and the cornea or whatever intraocular structures may have prolapsed. When the patient's condition or the environmental circumstances permit intraocular surgery, the surgeon merely removes the mattress sutures in the flap; when this is done, the fornix folds fall back into place and almost normal anatomic conditions are at once restored.

No attempt at intraocular manipulations should be made by an ophthalmologist, and certainly not by a physician not trained in ophthalmology, until circumstances are propitious. Any manipulations will simply cause more herniation of the bulbar contents. Nothing at all should be excised; prolapsed iris looks much like blood clot, and an attempt to remove it might cause irreparable damage.

Some systemic antibiotic should be started promptly after an injury of the eye, especially if ophthalmologic consultation is likely to be delayed. Local applications of all kinds are best avoided. Local antibiotics are not usually necessary, and local anesthetic agents retard the normal metabolism of the corneal tissues and prevent rather than expedite healing. Atropine should not be used. It puts the iris and ciliary body at rest, it is true, and helps allay traumatic iridocyclitis, but these advantages are far outweighed by its disadvantages, namely, that it in-

creases any existing prolapse of the iris, encourages peripheral anterior synechiae, and may precipitate dangerous secondary intraocular bleeding.

The administration of sedatives and narcotics will depend upon the patient's status, and, if he has other injuries, upon their nature. Tetanus antitoxin or a booster dose of toxoid should be part of the routine of management in multiple injuries.

## DIAGNOSIS

If the patient can provide the history of how he has been injured, his story may be helpful in diagnosis. Information secured from others may also be helpful. Data concerning the character, force and direction of a foreign body and the circumstances of the injury may assist in diagnosis and may help to determine the corrective procedure as well as its timing. The patient, of course, sometimes does not realize immediately that his eye has been injured. For one thing, there is frequently very little if any pain associated with an ocular injury. For another, the wound of the eye may be overshadowed by other wounds.

A precise diagnosis of ophthalmic injuries cannot be expected of a physician without specialized training, but it can often be made if certain points are borne in mind:

1. Injuries of the eye should be suspected in all patients with a head injury. Acute injuries of the cranial nerves and acute cerebral trauma are also often manifest in the eyes.

2. Because of the regional anatomy, an injury of the eye seldom affects a single ocular structure.

3. Even if the history and gross findings indicate only unilateral injury, an injury of the other eye must be assumed to be present until it is definitely eliminated.

4. The presence of a laceration of the eyeball is presumptive evidence that a foreign body has entered the eye, just as the presence of a laceration of the eyelids demands investigation of the injury, to determine whether it has extended into the eye.

5. Similarly, prolapse of any portion of the uveal tract or of the vitreous indicates a perforating injury and suggests

that a foreign body may have entered the eye. Prolapse of these structures is manifested by the presence of a bead of stringy, viscid material, like the white of an egg.

6. The presence of a shallow anterior chamber indicates that aqueous has escaped through a corneal or limbal wound.

7. If the patient is conscious and can respond to questions, he should be asked about his vision. Loss of vision may be caused by severe intraocular hemorrhage which will so obscure the retina that none of its details can be visualized. It may also indicate injury to the optic nerve as the result of contusion, concussion, or complete severance. A unilaterally dilated and fixed pupil observed immediately after a head injury usually indicates direct injury to the third nerve. Injury to the extraocular muscles or their nerve supply should be suspected if double vision is complained of.

8. Emphysema of the orbital tissues indicates an associated fracture extending into the paranasal sinus.

9. Enophthalmos suggests a fracture of the roof of the maxillary sinus or orbital floor, with sinking of the orbital contents.

10. Deviation and wandering of the eyes, often observed immediately after a brain injury, may disappear as consciousness is regained. Immediate extraocular palsy is almost certain proof of an injury to the nuclei or a nerve, and the prognosis for recovery of vision is poor. If the palsy develops later, the explanation is probably hemorrhage or edema, and recovery may be possible.

11. Hemorrhages into the eye not infrequently accompany injuries elsewhere in the body. Massive retinal hemorrhage and exudates are often associated with crushing injuries of the chest and are explained by compression of the vena cava and accumulation of blood in the chest. The punctate hemorrhages often associated with fractures of the long bones are probably to be explained on an embolic basis.

## SPECIAL TYPES OF INJURY

Small lacerations of the cornea and conjunctiva, like corneal abrasions, should be let alone. Usually they heal spontaneously. The corneal surface, even after most of the epithelium is destroyed by an abrasion — this may occur after



surprisingly trivial injuries — is capable of complete re-epithelization within 24 hours. More extensive injuries of the cornea, especially irregular injuries, require good lighting, appropriate equipment, and facilities for akinesia and competent anesthesia before they are attacked.

Traumatic glaucoma is always a possibility after direct concussion. Mild degrees of contusion and concussion may cause intraocular hemorrhages, particularly in the anterior chamber. Rupture of the iris and of the ciliary body are always possibilities after such injuries, and rupture of the sclera, another possibility, may be associated with dislocation of the lens. If these injuries are extensive, enucleation may eventually be necessary, but, as already pointed out, this is not an emergency decision and no one but the ophthalmologist should make it.

Intraocular foreign bodies also need not be considered an emergency. This was one of the most useful lessons learned in World War II. The secret of successful management is the postponement of any attempt at removal, by magnet or otherwise, until precise localization can be accomplished. This is possible only in a hospital with special facilities, including X-ray facilities, and with properly qualified ophthalmologists and roentgenologists to localize and remove the object. It is true that attempts at removal should be made before the foreign body becomes enmeshed in the intraocular tissues, but imbedding does not occur for some time after injury. Even if the delay is unduly long, the patient's best interests will still be served by waiting until optimum conditions can be met.

Hemorrhage into the orbit caused by trauma is a neglected phase of ocular surgery. In civilian industrial practice one often sees patients with total optic atrophy and loss of all light perception due to pressure exerted on the optic nerve by intraorbital hemorrhage. If there are signs of hemorrhage or of intraorbital edema, a lateral decompression by the method of Moran will permit the contents of the orbit to herniate beneath the temporal muscle and thus will save the optic nerve from pressure atrophy.

Another ocular complication of trauma to which not a great deal of attention is paid is angle closure glaucoma. Patients 40 years of age and older who have a structurally narrow angle of drainage require careful ocular observation after any sort of injury. If they go into shock, a paralysis of the parasympathetic nervous system may be followed by dilatation of the pupils, which may cause, in turn, blockage of the drainage angle. The pain and blurred vision which these developments cause would be manifest in a conscious patient but are not evident in a shocked patient. The condition must be diagnosed by the discoloration of the eye and the sense of hardness on palpation, but these signs will not be found unless they are looked for. If they are ignored, even for 24 hours, the result may be total loss of vision.

If the lids are injured, a general surgeon may sometimes find it necessary to undertake their repair. This procedure is not too difficult shortly after injury but it is extremely difficult, and the results are likely to be unsatisfactory, if it is deferred until the contracted muscles have become fibrotic. When this has happened, in fact, approximation may no longer be possible. The Wheeler halving operation is the most generally useful technique for repair of the eyelids, but the general surgeon is, naturally, unlikely to be familiar with it. He should therefore perform the simplest procedure possible. If debridement is necessary, it should be as limited as possible, for tissue is sparse in this part of the body, and skin grafting is usually a poor compromise. Suturing must be done with great care, tarsal plate to tarsal plate, muscle to muscle, fascia to fascia, and skin to skin. Careless approximation, as well as even a small amount of scarring from loss of tissue, may result in serious loss of function.

Thermal burns are treated on the general principles of the management of burns elsewhere on the body. When there has been extensive loss of skin about the eyes and on the eyelids, the eyeball should be protected by the conjunctival flap described, and massive sterile dressings should be applied over fine-mesh gauze impregnated with petrolatum, to prevent contracture and deformity of the lids and

## PRINCIPLE OF MANAGEMENT IN INJURIES OF THE EYE

adjacent tissues. Mild superficial burns of the cornea and conjunctiva need no treatment other than simple cleansing and the application of a sulfa, aureomycin or atropine ointment. Healing is usually quicker than with chemical burns, and there is less tendency for chronic inflammation and late vascularization.

Burns caused by radiation are likely to be one of the first effects of thermonuclear warfare. They may be extremely serious, not only from the standpoint of permanent loss of vision but because even temporary visual impairment may greatly hinder the orderly process of evacuation, upon which all defense hinges.

### SUMMARY

Whether injuries of the eye are sustained in civilian life or are part of the multiple injuries sustained in a mass disaster, they should be handled by the same general principles. If there are multiple injuries, they take precedence of ocular injuries. Physicians not trained in ophthalmology should limit themselves to sim-

ply first-aid care in injuries of the eyes. Even ophthalmologists should not attempt definitive management until the patient can be moved to an installation in which the conditions for ophthalmic surgery are propitious.

The general principles of first aid in ocular injuries are discussed, and suggestions are made for protection of the injured eyes until the required surgery can be done. Special types of injuries, including injuries from thermonuclear warfare, are also briefly discussed.

### References

1. Clark, William B.; Dunphy, Edwin B.; Irvine, S. Rodman; Post, Lawrence T., and Vail, Derrick T.: Initial Treatment of acute injuries of the eye. *Bull. Am. Coll. Surgeons* 38:367-374, 388 (Nov.-Dec.) 1953.
2. Haik, George M.: A fornix conjunctival flap as a substitute for the dissected conjunctival flap: A clinical and experimental study. *Tr. Am. Ophth. Soc.* 52:497-524, 1954.
3. Moran, Robert E.: Decompression of the orbit for exophthalmos. *Tr. Am. Goiter Assn.* pp. 52-65, 1953.



# ♦ *What's* NEW ♦

## Otolaryngology

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After a number of years of relatively slow progress in the development of new ear, nose and throat procedures, our specialty has made great strides in the last five years. Particularly in the field of otology have we experienced new advances in surgical techniques that now enable us to restore hearing in a great variety of cases. Only the relief of nerve deafness remains as an unattained goal.

A number of years ago, in 1939, the fenestration procedure for relief of otosclerosis became an acceptable one stage operation under the brilliant advances of Julius Lempert and claimed an honored position in the armentarium of the otolaryngologist. However it created an artificial pathway for hearing and thus it carried with it a remaining deficit of hearing, even when successful. It also had a number of other rather strong drawbacks to the patient, especially dizziness and the permanent after care required. This however continued to be the only successful operative procedure for relief of otosclerosis until in April, 1952, when Samuel Rosen first reported his new technique for mobilization of the stapes as another method of restoring hearing in cases of otosclerosis. This same procedure had been attempted by a number of men in the last part of the 19th Century but had been discarded by 1900 because of unsatisfactory results. However with newer lighting devices, finer glasses for proper magnification, antibiotics for control of infection, and a new surgical approach for middle ear surgery (again devised by Julius Lempert), Samuel Rosen created a technique to successfully mobilize the fixed stapedial footplate and thus restore

natures own pathway for conduction of sounds to near normal function. It has been subsequently shown by Rosen, House and others that a percentage of these cases can be restored to the full potential of the hearing nerve which was not true in the fenestration. So with Stapes Mobilization, the patient has a chance for better hearing results, little chance of annoying vertigo, and no post operative care needed. Also the fact that this operation entails only a small incision in the ear canal and a gentle elevation of part of the drum allows the operation to demand very little physical strain on the patient and therefore further recommends itself to the physician and the patient alike. Results vary greatly with the training, experience and ability of the surgeon and thus should not be done by the inexperienced opportunistic surgeon.

It is now the general consensus that for surgical treatment of otosclerosis the Stapes Mobilization procedure should be performed first, and only if this fails should the patient be subjected to the fenestration. Fortunately an ear that has had an unsuccessful mobilization procedure can still be successfully fenestrated! An ear with an unsuccessful fenestration cannot however be later mobilized with any success. These facts plus the relatively minor surgical approach are the reasons why stapes mobilization should be carried out initially.

Along new lines still further progress was made in Otology when in November, 1953, Howard House of Los Angeles was the first to report the surgical repair of a perforation of an ear drum using a thin full thickness skin graft taken from behind the ear. Using this new idea a great

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deal has been written and done, largely by the Europeans lead by Wullstein and Zollner, both of Germany, on a new management and treatment of chronic middle ear disease. The use of a skin graft to cover the ear drum perforation after carefully removing all middle ear pathology is now advocated for all cases of chronic otitis media that meet the only requirements of (1) still having good nerve function, (2) a patent eustachian tube and (3) no evidence of active purulent infection. Many cases will have pathology in the attic and mastoid recesses and it will be necessary in these cases to *also* clean out the mastoid and attic of the middle ear. However where there is a simple central perforation without other complications, the skin graft can be applied working through an ear speculum with no incision required.

Von Wullstein has labeled these new surgical procedures Tympanoplasties and broken them down into various subgroups depending on what must be done for the various problems that may exist in these cases of chronic otitis media. However in general all tympanoplasties are designed to restore a closed air bearing space to the middle ear with a functioning eustachian tube and oval and round windows, plus riddance of all existing pathology; thus, restoring or improving hearing in all cases.

The old idea of complete removal of all middle ear structures and closure of the eustachian tube as the answer to chronic otitis media, as done in the radical mastoidectomy, is on the way out! The only exceptions in the future will be the cases of threatened intracranial complications or a purulent ear unresponsive to sustained treatment or of course any case where there is not adequate nerve function or a patent eustachian tube. All other cases of chronic otitis media now will be handled by some form of tympanoplasty designed as previously stated to restore or preserve hearing by ridding the middle ear of pathology but saving the middle ear structures whenever possible, and restoring the closed air space (by skin graft)

to the middle ear with its connecting patent eustachian tube.

It is easy to see the tremendous import of this new approach to an old problem and the possibilities of these new procedures are just beginning to be realized. Much more must and will be done as this work evolves over the next few years.

Another big advance in Otology has been the development in recent years of the transistor hearing aid which represents a great advance in hearing aid development and replaces the vacuum tube aids as the one of choice. Also newer and finer audiometric machines for accurate measurements of hearing continue to come forth and place the diagnosis of hearing problems more and more on a firm scientific footing. There recently has been introduced an inexpensive yet dependable dual frequency unit called the Oto-Chek, made by the A. M. Brooks Company of Los Angeles. This allows the physician to determine in seconds if a patient has normal hearing or if further, more complete audiometric studies should be carried out. The use of this instrument both in industry and in school examinations as well as in one's private office has tremendous value.

Otology is on the move and it now behooves us all to appraise our ear cases with renewed interest, with a revised idea of treatment, and a much happier view of our patient's otologic future.

While not as recent or new, yet just as exciting, is the growing importance of rhinoplastic surgery both from a functional and a cosmetic standpoint and yes, occasionally even a psychiatric standpoint. We are finding a place of continuing importance for rhinoplasty in many phases of Rhinologic Surgery and a growing acceptance of its value by the public AND the doctors.

While many contributions, especially in surgical techniques and surgical equipment, continue to be made in other phases of Otolaryngology, the greatest strides and the center of the specialty's present enthusiasm rests in the rapidly changing field of Otology.



**A TEACHING SEMINAR**  
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## Obstetric Principles Involved in the Induction of Labor

JOHN B. NETTLES, M. D.\*

Induction of labor may be either elective or therapeutic. The purely elective induction is carried out for the convenience of the patient or her obstetrician or both. Therapeutic induction is done in order to improve the health of the mother or child or both. If the procedure is performed before the child is viable, it is called therapeutic abortion. This presentation is concerned with the obstetric principles rather than the details of methods.

### ELECTIVE INDUCTION

Elective induction, done solely for reasons of personal convenience, requires that every precaution be taken to prevent harm from the procedure. Rigid prerequisites can reduce the complications to a minimum and under favorable circumstances permit better care than may be available when patients enter labor spontaneously under unfavorable circumstances. This is especially true in regard to complications that arise before the patient enters the hospital in active labor, for example, premature rupture of membranes, prolapsed cord and rapid unattended delivery. When certain prerequisites are met, labor can ordinarily be induced safely.

### PREREQUISITES FOR ELECTIVE INDUCTION

1. *Mature infant*—Evaluation of the maturity of a fetus by menstrual history alone is notoriously unsatisfactory. Estimation of the size of the fetus by abdominal examination is helpful if carefully done. Other aids may be the estimate of the term date from the time of quickening and the first appearance of fetal heart tones, from the size of the

uterus at various visits during pregnancy, from the interpretation of radiologic films, from the condition of the cervix, from the station of the presenting part and from any other information which can be obtained, such as the date of conception. If all available data is correlated and coincides with a mature pregnancy at term, the chances of having a premature infant or a failed induction are minimal. Whenever any of this information is not available or does not indicate a term pregnancy, a red flag of warning is present.

2. *Favorable cervix and station*—The condition of the cervix offers an excellent index of the chance for successful induction. If the cervix is soft, at least half effaced, and will admit a finger easily, labor can ordinarily be initiated with little difficulty. The presenting part should be engaged in the pelvis or be impressible into the pelvis against the cervix. The lower the presenting part, the less chance there is for prolapse of the umbilical cord. A favorable cervix not only indicates that labor can be induced but also that the infant is probably mature.

3. *Adequate pelvis and normal presentation*—Cephalopelvic disproportion or a fetal malpresentation making vaginal delivery hazardous is a contraindication to the induction of labor. These conditions are especially dangerous if oxytocic stimulation of contractions is used. The possibility of an unrecognized cephalopelvic disproportion must be kept in mind whenever labor does not progress easily.

4. *Willingness and ability of the obstetrician to manage complications*—Induction of labor is planned interference. When complications arise, whether merely

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associated with or as a result of the induction, the obstetrician assumes the full responsibility. He should be capable of extricating himself from unfavorable situations which might occur in spite of all precautions. When therapeutic induction is carried out and all the prerequisites for elective induction are not present, it is the obstetrician's responsibility to evaluate the possibility of complications, to decide whether to take the calculated risk and if so, to be able to conduct labor with the least hazard.

5. *Adequate personnel and facilities*—The staff must understand the procedures and follow the patient closely. Induction of labor requires the constant attention of capable attendants. As a greater number of elective inductions are performed, there is a tendency for all personnel to become a bit careless in observing precautions. This is especially true if inductions are carried out at night and over weekends. All personnel must know that the oxytocin should be discontinued at once whenever there is slight suspicion of complication, and help then sought.

In general, a physician must be in constant attendance whenever oxytocin is being used. Elective induction should be carried out at times when the labor and birth rooms are most ably staffed.

Induction of labor requires complete obstetric facilities. Ether should be available to counteract tetanic contractions. Oxygen must be present. The delay before major operative procedures can be performed should be slight. Blood and anesthesia should be available on short notice.

In summary, good results from elective induction are obtained by obstetricians who insist that the pregnancy be mature, that the cervix, station, and presentation are favorable, that the pelvis is adequate, that the staff is competent and the facilities are satisfactory.

#### THERAPEUTIC INDUCTION

Therapeutic induction of labor is carried out for the benefit of the mother or child or both. The urgency of delivery for each patient determines the management — the time of induction, the means of induction, the extent to which one will persist if induction fails. In patients

with abruptio, it is important that delivery be effected within hours while, if induction is done for maternal diabetes, induction may fail one day and be tried again the following day. Ordinarily membranes are stripped and/or ruptured as a part of the induction procedure. However, if delivery may be deferred a few days rather than hours, oxytocin can be given for several hours a day in order to change a long, closed, uneffaced cervix into one more suitable for induction prior to rupture of the membranes.

For elective induction, all of the prerequisites listed above must be met and whenever one stretches the criteria, he is assuming an increased risk. When induction is done for maternal or fetal complications, it is necessary to relax the prerequisites to a degree whereby the added risk of induction does not exceed the risk of continuing the pregnancy or of terminating the pregnancy by cesarean section. Each patient must be considered from the standpoint of the best time and method of delivery.

#### INDICATIONS FOR THERAPEUTIC INDUCTION OF LABOR

The indications for therapeutic induction of labor vary with individuals and the circumstances under which labor and delivery can be conducted. When all of the prerequisites for elective induction are rigidly met, therapeutic induction can be done with relative safety for minor circumstances such as premature rupture of the membranes at term without the onset of labor, for a history of rapid labor, for patients who live a distance from the hospital or for patients who cry "wolf" often and enter the hospital with repeated episodes of "false labor." If the staff and facilities are deficient, one would ordinarily prefer noninterference even in these patients but under favorable conditions, induction would benefit both mother and child.

Common indications for induction of labor are toxemia of pregnancy, maternal diabetes, premature separation of the placenta and low grade placenta previa. Less common indications include occasional patients with Rh factor incompatibility or antepartal fetal death, hydramnios and habitual death of the fetus.





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**NEW DOSAGE.** The recommended adult dose is 1 Gm. (2 tablets or 4 teaspoonfuls of syrup) the first day, followed by 0.5 Gm. (1 tablet or 2 teaspoonfuls of syrup) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive  $\frac{1}{4}$  of the adult dosage. It is recommended that these dosages not be exceeded.

**TABLETS:** Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

**SYRUP:** Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.



#### CONTRAINDICATIONS TO ELECTIVE AND THERAPEUTIC INDUCTION OF LABOR

Contraindications to elective induction of labor are failure to meet any of the prerequisites listed previously or a hesitancy on the part of the patient to accept the procedure. Contraindications to therapeutic induction of labor are relative but, in general, are any contraindications to vaginal delivery and an urgency of delivery where minutes rather than hours or days are important.

In addition, one must re-evaluate the advisability of abdominal delivery at various times after induction is started and decide whether to persist in the induction or whether to perform a cesarean section. At times it is better to desist and permit labor to progress spontaneously.

The presence of a breech presentation, a twin pregnancy or a history of previous cesarean section is a relative contraindication to the induction of labor.

#### CHOICE OF INDUCTION METHODS

The choice of the method for induction of labor is determined both by the experience and ability of the obstetrician and by the condition of the patient. Often stripping and/or rupture of the membranes alone may be sufficient. This is especially true in the patients who meet the criteria for elective induction and in patients with premature separation of the placenta.

Oxytocic either alone or in conjunction with rupture of the membranes is commonly employed. At present most obstetricians prefer the continuous intravenous administration of dilute oxytocin because of greater ease of control of dosage. Intranasal or subcutaneous oxytocic is often preferred by those experienced with these methods, and occasionally where the larger volume of fluid required by intravenous methods would be contraindicated.

Rupture of the membranes is an essential part of the management, though the time of rupture of the membranes varies according to personal preference and the circumstances.

Many patients will go into labor within 3 or 4 hours of rupture of the membranes and there will be no need for the use of oxytocic. Many fear an increased

danger of ruptured uterus in the grand multipara if oxytocin is used. There is the theoretical possibility that the spontaneous onset of labor will coincide with the initial stimulation from the intravenous oxytocic, though this argument loses force when the patient's dosage is titrated against the response of the uterus.

When the oxytocic is started immediately following rupture of the membranes, the time of delivery can be more easily predicted. A patient can be examined in the early morning and if conditions are favorable, the membranes ruptured. If pitocin is started immediately, delivery will likely be accomplished while the "day shift" of personnel are on duty. Opponents of this view prefer to rupture the membranes in the early morning, then finish their operative or office schedules, and then if the patient is not in active labor, use oxytocin at a time when they can devote their full attention to their patient. The availability of a trained and capable house staff or assistant would be a factor in determining individual preferences.

Rupture of membranes after labor is established best simulates conditions similar to those in spontaneous labor, that is, the membranes would be artificially ruptured under the same conditions as if the patient were in normal spontaneous labor — advanced dilatation, low station. Unfortunately, labor cannot be induced easily when the membranes are not ruptured.

#### COMPLICATIONS OF INDUCTION OF LABOR

Most serious complications are the result of mismanagement. Ruptured uterus, sustained tetanic contractions of the uterus, and precipitate delivery are usually the result of improper dosage. Oxytocin, like insulin, has no set dosage but must be titrated against the response in the individual patient. The initial dose should be small — a half or one minim subcutaneously or an intravenous infusion of 10 units per liter of diluent (1 cc. pitocin to 1000 cc. 5 per cent dextrose in distilled water) at the rate of 10 drops per minute. The dosage can be increased in 50 per cent increments every 20 to 30 minutes until the desired effect is reached. Intravenous infusions should have the rate of flow regulated prior to adding the

oxytocin or should be administered with a Y-tube set-up, one end to the solution containing no pitocin and the other to one containing pitocin, in order to control the amount of oxytocin reaching the patient. Filtration of dosage will usually prevent the "piddling pit pains" of inadequate response or the tetanic contractions caused by excessive dosage or response. Should good contractions occur but labor progresses poorly, the oxytocin should be discontinued and the patient re-evaluated for possible cephalopelvic disproportion.

If a careful attempt is not made to establish the maturity of the pregnancy, unrecognized premature delivery may occur. When therapeutic induction is carried out, these complications are more frequent but are accepted as calculated risks and their possibility is known prior to induction. Persistent tetanic contractions may occasionally occur but can ordinarily be controlled with ether anesthesia. Prolapse of the umbilical cord should occur no more frequently than with spontaneous labor provided the presenting part is engaged in the pelvis.

Failure to effect the onset of labor should seldom occur when criteria for elective induction are present. Should the patient not go into labor, another attempt a day or so later should be successful. A failed induction, per se, is not an indication for cesarean section even though the membranes have been artificially ruptured.

Fetal anoxia may occur if labor is too vigorous or if there is cephalopelvic disproportion, but can be prevented by usual obstetric precautions. Birth injury should be no more common than with spontaneous labor and delivery.

There should be fewer anesthetic complications with elective induction than with spontaneous labor because the patient enters labor with an empty stomach and good emotional state. The anesthetic risk is greater with an urgent therapeutic induction but the associated condition such as premature separation of the placenta with hemorrhage, toxemia and shock, accounts for the majority of complications. In fact, induction of labor helps prevent these complications rather than cause them.

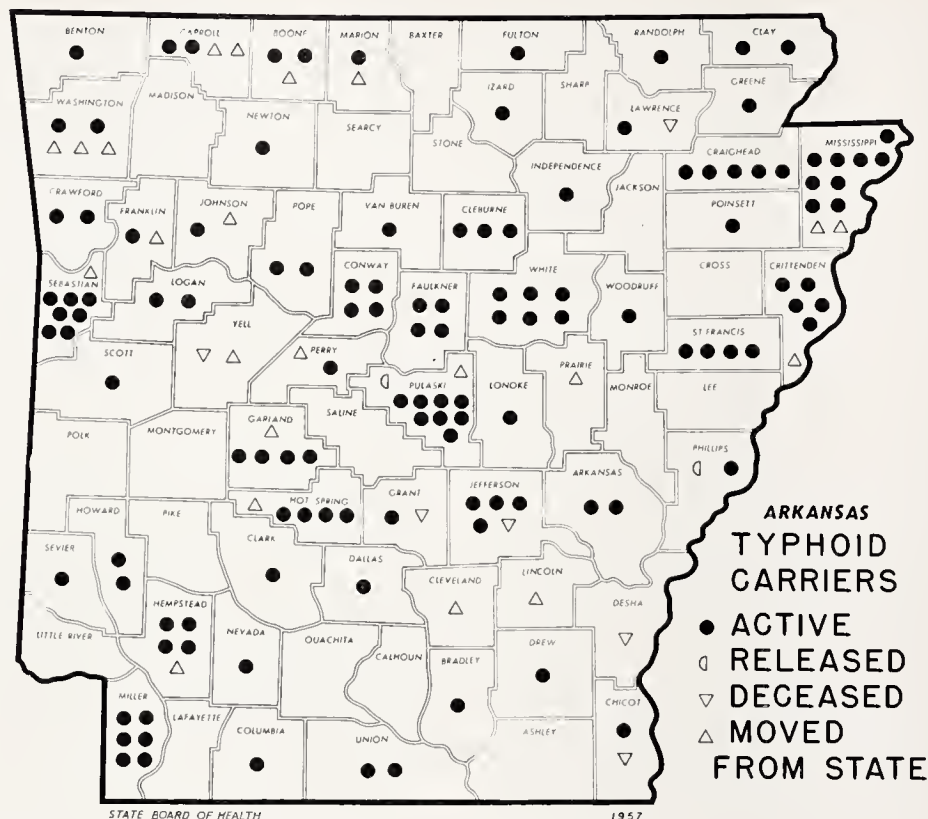
## DISCUSSION AND CONCLUSIONS

The induction of labor, whether elective or therapeutic, is a safe procedure in the hands of careful, able obstetricians. In the hands of the inexperienced, it is a hazardous procedure, but no more so than cesarean section, difficult forceps, general or spinal anesthesia or the management of toxemia.

By the induction of labor for the health of the mother or child, the need for a cesarean section is removed. If induction fails, no harm is done and cesarean section can still be safely performed. Under special circumstances, induction of labor is advantageous, though not necessary, for women with ruptured membranes and not going into labor and for women who might have rapid or unattended deliveries. The choice of purely elective induction over awaiting the onset of spontaneous labor is usually one of personal preference provided the prerequisites are present. The important point is not whether to induce or not to induce, but whether the obstetrician exhibits due knowledge, judgment, and care, and has adequate assistants and facilities.



# ARKANSAS PUBLIC HEALTH AT A GLANCE



## Typhoid Carriers in Arkansas, 1957

Typhoid fever in Arkansas is now largely an endemic, carrier-borne disease. It follows that the detection and control of carriers is the most important public health measure in the control of this disease at the present time. Sanitation and immunization measures, of course, have had great importance in eliminating epidemics of this disease.

A permanent Register of Typhoid Carriers is maintained by the Communicable Disease Division of the Arkansas State Health Department. Typhoid carriers are searched for by public health personnel amongst the family and associates of each new case of typhoid. The new case is checked after treatment to be sure that a new carrier has not been established. Routine stool examinations of food handlers and several other special categories of persons have discovered a few carriers. All carriers are placed under a modified quarantine and asked to sign an agreement to stay out of food handling occupations and situations. Despite modern treatment methods, the elimination of the carrier state remains very difficult. Few carriers have been released, as shown by the accompanying map, which shows the current status of carriers known to the State Board of Health.

So long as typhoid fever remains endemic due to the presence of undetected carriers in the population, typhoid immunization remains a worthwhile procedure. There is no contraindication to giving this immunization at the same time that other immunizations, such as polio or diphtheria-tetanus-pertussis, are given. The intradermal dose of 0.1cc gives less local and systemic reaction and just as good immunization as the 0.5cc subcutaneous dose (under 1 year of age the subcutaneous doses are 0.2, 0.4 and 0.4cc instead of three 0.5cc doses). If a person has ever had the initial series in the past it is unnecessary to repeat the series. A single booster dose will bring this immunization up to date.

\*Sponsored by the Arkansas State Board of Health

## Resolution In Memoriam

### Doctor Samuel Presley Junkin

God in his infinite wisdom on August 22, 1957, called from this earth, Dr. Samuel Presley Junkin. This ended the life of a man devoted to the principles of service to mankind and peace and good will to all of his fellow beings.

Dr. Junkin was a Physician in the true sense of the word. He was seldom too sick and never too tired to respond to the call of those who were in pain or those who sought advice and encouragement in their dark hours. Dr. Junkin had a large practice, much of which was rural with a radius of many miles. Many of his days and nights fused into one long day with little time for rest or nourishment and in the early days of his practice, he braved the storms and the cold on horseback to bring relief to the sick.

To those of us who knew him well, he will be remembered as a quiet, soft spoken man devoted to his profession, his patients, his friends and to his family. His greatest reward was the respect and gratitude of his patients and the love, respect and devotion of his family.

He was a member of the Pulaski County Medical Society, the Arkansas Medical Society and the American Medical Association for many years and was an Hon-

orary member of this Society from 1947 until his death.

We, his Colleagues in the Pulaski County Medical Society also treasure our memories of Dr. Junkin. We have lost a man whose devotion to his profession and kindness and good will stand out as an example for all to follow.

THEREFORE, BE IT RESOLVED that the Pulaski County Medical Society express to the bereaved family of Dr. Junkin our sense of loss and extend our sympathy and condolences to them in their hour of grief.

BE IT FURTHER RESOLVED that a copy of this Resolution be sent to the family of Dr. Junkin and that a copy be placed in the minutes of our meeting; and, BE IT FURTHER RESOLVED that a copy of this Resolution be published in the Journal of the Arkansas Medical Society.

Sincerely submitted,

Dr. Joe H. Sanderlin, Chairman

Dr. R. E. McLochlin

Dr. A. R. Sparks

Committee on Resolutions

Adopted and approved October 1, 1957.



# Osteopathy in Arkansas

On Friday, October 25, 1957, the Arkansas Gazette published the following news article:

## Osteopaths Begin New Drive To End Practice Restrictions

Members of the Arkansas Osteopathic Association of Physicians and Surgeons asked yesterday that the Legislative Council undertake a study to determine if the restrictions on osteopaths in Arkansas shouldn't be removed.

A resolution asking the Council to investigate the osteopathic profession and the state's health problems was adopted at the Association's annual fall meeting at the Albert Pike Hotel.

Dr. Carl E. Morrison of St. Cloud, Minn., president of the American Osteopathic Association, said that one of the prime restrictions on osteopaths in Arkansas was the fact that they were not allowed to perform major surgery.

He said this prevented the establishment of osteopathic hospitals in the state and added that no Arkansas graduate of an osteopathic school had returned to the state to practice since 1941.

### Only 25 in Arkansas

The osteopaths have been trying for several years to obtain equal status under the law with medical doctors. They sponsored a bill in the last legislature to remove restrictions on their practice but it was defeated 32-46 in the House of Representatives. There are only 25 osteopaths in Arkansas.

Dr. Morrison, one of the principal speakers at the meeting, said that osteopaths were licensed to use all known methods of treatment without restriction in 36 states.

Osteopathy is a field of medicine that places emphasis on manipulation of parts of the body in treatment but also includes use of medicines, surgery and other forms of treatment.

In his address at the meeting Dr. Morrison said that Arkansas had only one doctor for every 1,285 residents and said:

"Where doctors are hard to get it is short-sighted to prevent osteopathic physicians from practicing to the full scope of their training. And it is inexcusable to discourage young doctors from settling in a state because of antiquated practice laws."

The resolution said that Arkansas had a critical rural health problem due to a shortage of physicians that was of such proportions as to seriously affect the state's industrialization program.

The above article is one of several published in the Little Rock press concerning the spread of osteopathy in Arkansas. The Arkansas Medical Society has discussed this problem in its Council. The Medical Society is now facing the reality of a determined drive of the osteopathic group to muster public support for licensing so that they can perform major surgery and other types of important therapy.

The Medical Society must counter this move.

## Medicine in the News

### A.M.A. Membership Shows Growth

At a staff meeting back in 1955, A.M.A. secretary and general manager, Dr. George F. Lull, set a goal of 160,000 members by 1960. His goal has already been exceeded.

As of Sept. 30, all classifications of membership totalled 168,399. This included 145,452 active members, 6,057 associate members, 16,512 service members, 289 affiliate members and 89 honorary members.

### Hold Forum for Law and Medical Students

The American Medical Association and the American Bar Association have been working jointly for some time to create a better working relationship between physicians and lawyers. This spirit of inter-professional cooperation has now reached down to the student level.

On Oct. 12, the American Law Student Association and the Student American Medical Association jointly sponsored the first medicolegal day in New England for law and medical students. The event featured a forum at Harvard Law School in Boston for the exchange of ideas between students of both groups.

### AMA Opposes Elimination of Military Veterinary Corps

In a letter to Defense Secretary Neil A. McElroy, the American Medical Association has asked for reconsideration of a directive that would in effect abolish the military veterinary corps. The question first rose in 1956 when the then Defense Secretary, Charles E. Wilson, indicated his intention to eliminate the corps in continental United States and turn over meat inspection duties to the Department of Agriculture. After receiving a number of protests, Mr. Wilson held up action on the directive. On October 1 of this year, shortly before his retirement, Mr. Wilson issued the directive that would mean the end of the veterinary corps. In asking Mr. McElroy to reconsider the Wilson order, the AMA pointed

out that the House of Delegates in June, 1956, voted to oppose abolition of the corps. The letter to Mr. McElroy, signed by Dr. Ernest B. Howard, Assistant AMA Secretary, said in part:

"The requirement for trained veterinarians to inspect animals and animal food products is necessary for the maintenance of the health needs of military personnel at all times. The trained veterinarian capable of accomplishing such mission must be responsive to the military command. Experience has shown that when adequately trained veterinarians are not available to the military, this duty is by command decision placed upon military physicians. Accordingly, such action reduces the services of military physicians available for military medical requirements in care of patients. For these and other reasons . . . the American Medical Association requests that you carefully reconsider the October 1 directive in light of your responsibilities for the health of the personnel of the Armed Forces under their world-wide mission and world-wide bases."

### Advisory Committee Named on Chronic Illness, Health of Aged

A 13-member committee has been named to investigate chronic illness and health of the aged and to make recommendations to Public Health Service. The group now is holding its organizational meeting in Washington (October 17-18).

This is the third organization set up by the Department of Health, Education, and Welfare to look into the problems of the aged. Others are a departmental committee, taking in all activities of HEW concerned with aging; a PHS committee on aging; and a Center for Research on Aging, located in the National Institutes of Health.

In announcing the new committee, made up of physicians and others interested in the aged, Surgeon General Burney said: "Since 1900, the number of people 45 and over has increased 3½ times. Today, more than 40 million people — approximately 30 percent of the total population — are in this age group. By 1970 their number is expected to increase to 61 million. Moreover 40 percent of the chronically ill in this country are persons 65



years of age and over, of whom there are now 14 million in the United States."

### **Dr. Hess Cites Need for Doctor Interest in Civil Defense**

Dr. Elmer Hess, newly appointed head of the Health Resources Advisory Committee to the Office of Defense Mobilization, says physicians must take an active interest in their community civil defense and survival phases of atomic war. Dr. Hess, making his first public address since taking over the federal post, spoke at the annual scientific assembly of the District of Columbia Medical Society. He noted that he had recently returned from a tour of U. S. air bases in England, West Germany and the Middle East and had found the situation very tense. In the event of an all-out war, a dedicated medical profession will be essential for survival, he added.

The former president of the American Medical Association also had some advice for medical schools. He said they should consider the "human qualities" as well as the traditional scholastic standing in selecting medical school candidates.

### **VA Statistics**

(As of July 31, 1957, from the Federal Medical Services Newsletter):

Veterans in civil life, end of month, 22,641,000; Korean veterans, 5,122,000, World Wars I & II, 17,389,000. Increase over July 1956, 236,000: Korean veteran increase, 386,000; WW I & II decrease, 152,000. Average daily patient load, 112,499: VA hospitals, 109,579; Non-VA hospitals, 2,920. Decrease from July 1956, 66: Increase in VA hospitals, 154; Decrease in non-VA hospitals, 220. Eligible hospitalization applicants awaiting admission, 22,188: Disabilities adjudicated service-connected, 0; Increase over July 1956, 1,705. Medical outpatients during June 1957, 161,110: Decrease from June 1956, 10,359. Dental outpatient cases completed, 9,497: Decrease from June 1956, 8,177.

Apparently, VA patient loads are relatively stable at present. However, it seems likely that Congress will have to decide shortly whether this load is to remain stable. Already, veterans' groups in Cal-

ifornia, Texas and Florida have been pressing for new VA hospitals in their areas, although there are no service-connected cases on the VA waiting list anywhere in the United States.

In the light of the above figures, we would like to quote some remarks made by Veterans Administrator Harvey V. Higley at a hearing of the House Committee on Veterans' Affairs in February 1956 (*italics added*):

"If you have an extra bed you are not using, and if you have a veteran, non-service connected, who needs hospitalization, and he cannot afford to pay for that hospitalization then we are automatically to take him in. But it is predicated entirely, you will note, on if we have extra beds. That is the whole essence of it.

"Now, we find ourselves today in the situation of operating about 100,000 patients in our own hospitals, and on any given day over a third of them are service connected and two-thirds of them are non-service connected. We do not need to go into a lot of detail, but that is approximately the situation.

"So, just putting it bluntly, that is the situation. If you add on any appreciable number of beds, either as a big addition or as a big hospital, you are building beds for non-service connected, whereas the law as it exists today actually says you will only take in non-service connected when you have extra beds, when they are beds that you do not need for service connected.

"So I think there is a fundamental question that has got to be answered here pretty soon: Is it the will of Congress and the American people that we will build beds for non-service connected? . . ."

### **Fogarty Predicts Active Year in Health Legislation**

Rep. John Fogarty (D., R. I.), chairman of the House Appropriations subcommittee on the HEW budget, is counting on a busy year in the health field during the second session of Congress. In an address to the American Hospital Association annual convention, the Rhode Island congressman placed federal construc-

tion aid to medical schools high on the list of bills due for action. He made no mention of the labor-backed bill for free hospitalization for the aged under social security.

### **Latin American Health Ministers Approve 1958 Budget**

Ministers and directors of public health in 21 American republics and territories have approved a \$3 million budget for the next year covering some 160 health projects conducted by the Pan American Sanitary Bureau, the regional office of World Health Organization. Action was taken by the directing council of the policy-making Pan American Sanitary Organization.

The new budget represents a \$600,000 increase over this year's budget. The U. S. share is estimated at \$2 million. In addition to the \$3 million, WHO plans an allocation of \$1,558,502, while United Nations technical assistance funds will amount to \$1,275,308.

PASO reported at its annual meeting in Washington that present planning of member governments should see the eradication of malaria in most countries within 5 years and that it should be entirely wiped out on the continent in the foreseeable future.

### **Prize Lecture Award**

The American Congress of Physical Medicine and Rehabilitation at its annual meeting in Los Angeles announced the presentation of the award for the best essay in the field of physical medicine and rehabilitation by a graduate medical student to Doctor J. B. Redford, Mayo Clinic, Rochester, Minnesota. His contribution was entitled "The Effects of Breathing Exercises on Pulmonary Emphysema."

### **New Task Force Begins Studies**

The AMA task force, which was appointed to study proposals for hospitalization of the aged financed by Social Security funds, met in Chicago at an all-day meeting on Friday, Sept. 27, and set Friday, Nov. 15, as the date for another meeting.

All members of the committee, head-

ed by Dr. George M. Fister, Ogden, Utah, a member of the Board of Trustees, were present, along with several staff people from AMA headquarters and the AMA Washington office.

Walter Polner, Ph.D., a member of the staff of the AMA Bureau of Medical Economic Research, has been appointed research director for the task force.

He is collecting information available from AMA departments and from other organizations and government agencies. After reviewing the material, the task force will endeavor to define the problems, outline the programs and activities now being carried on to meet them, and recommend whatever additional actions should be taken.

### **Who Warns of Health Hazards In Nuclear Energy Reactors**

A special World Health Organization committee, reporting on results of its study, emphasizes the health hazards inherent in nuclear energy reactors, and stresses that public health aspects must be kept in mind at all times, including selection of sites. The expert committee on professional and technical education of medical and auxiliary personnel met in Geneva and its report was released in Washington.

Because nuclear radiation in all its forms generally is harmful to living organisms, the committee warns if nuclear energy is to be utilized safely the problems of contamination of inhabited areas must be solved. The committee has drawn up a training schedule for all categories of personnel employed at reactors, and recommends that courses on protection of the public be given for the benefit of hospital administrators, industrial hygiene workers, sanitary engineers, mental health specialists and nurses.

### **Doctor Fees Below Other Health Costs**

A report in the Monthly Labor Review on medical care costs in the cost of living index notes that in the past 20 years hospital costs have risen sharply in contrast to physicians' fees. The article by a Bureau of Labor Statistics employee lists these increases between 1936 and 1956: hospital room rates, 264.8 per cent; dentists' fees, 82.1 per cent; general practi-



tioners' fees, 72.8 per cent, and surgeons' fees, 59.5 per cent. In the same period, medical care costs generally have lagged behind costs for food, personal care other than medical and clothing. The report makes this observation: "With the higher level of living attained in 1950, relative expenditures for medical care tended to increase as incomes increased, as is usually true of items considered as 'necessities' in the family budget. The fact that this pattern has begun to appear in the spending of workers' families indicates the high order of importance they place on medical care . . . ."

### **AMA Urges Special Channels For Physician Emergency Use**

The American Medical Association has formally recommended that the Federal Communications Commission set aside six radio channels nationwide for emergency use of physicians. AMA also endorsed use of several channels for non-commercial FM educational broadcast stations. The proposed channels all would be in the vicinity of 161 megacycles in the radio spectrum.

### **Paralytic Polio Down 80 Per Cent: Vaccination Campaign Pushed**

Because he feels that Salk vaccine has dramatically demonstrated its effectiveness, Secretary Folsom is urging that renewed efforts be put into the nationwide drive for vaccinations. Early this year the American Medical Association initiated the campaign, which has the support of the State and Territorial Health Officers, the Advertising Council and the National Foundation for Infantile Paralysis, as well as U. S. Public Health Service.

### **VA Study on Chemotherapy in Psychiatry**

Veterans Administration is extending a study made earlier this year on chemotherapy in psychiatry, expecting to continue observation of half the 1,000 patients covered in the original survey. The second phase will be similar to VA's chemotherapy of tuberculosis program for testing new drugs, completed in 1946. It will include studies of the effects of chlorpromazine and promazine, on which the first tests centered, and also newer drugs as

they are developed, including tranquilizers, psychic energizers and anti-hallucinatory drugs. The new study, to extend for three months, will be conducted at 29 hospitals. The earlier one, also for three months, involved 40 hospitals.

### **Second World Conference On Medical Education**

Doctors and medical educators of the world will be convened to consider the theme: **Medicine—A Life Long Study** at the Second World Conference on Medical Education scheduled for Chicago, Illinois, August 30-September 4, 1959.

This Conference will be sponsored by The World Medical Association. Collaborating organizations include

The World Health Organization  
International Association of Universities  
Council on International Organizations of Medical Sciences

### **A Valuable Document On Welfare Policy**

There has just been received a document entitled, "Underwriting Canadian Health—An Economic View of Welfare Programs."

The document, prepared by a firm of consulting economists at the request of the Canadian Chamber of Commerce and the Canadian Life Insurance Association, is a valuable contribution to discussion, debate, and understanding of the social and economic implications of government welfare programs.

The views and arguments expressed and the suggestions made cover 165 pages. But there is one paragraph in the summary which is of special interest. It follows:

"A possible conflict between two desirable social objectives (wealth and welfare) obviously poses difficult problems of choice . . . . The main conflict posed by these two objectives is that an excessive concern with welfare expenditures may stunt the wealth-creating capacity of the community. On the one hand, taxes beyond a certain level tend to dry up sources of saving and investment and reduce incentives to strive for higher personal income, particularly at the ex-

ecutive level. On the expenditure side, the expansion of welfare benefits tends to narrow the scope of personal responsibility and dull incentives for personal advancement on the part of recipients. When welfare policy comes to have precedence over policies aimed at higher national productivity and output, the society concerned may be thought of as trying to eat its cake before it has it. Wealth must therefore come before welfare because in the long run it is productivity and not the degree to which income redistribution is arranged by legislation that determines real income."

### **PHS Issues License On New Adenovirus Vaccine**

The Public Health Service has cleared the way for production of adenovirus vaccine, a new product directed at a number of upper respiratory diseases. PHS, acting under the Biologics Control Act, has given a license to Parke Davis Co. for its manufacture. This firm was involved in the early research, which was conducted by the National Institutes of Health and the Walter Reed Army Institute of Research.

### **Medical Education Congress Set for February 9-11**

Problems confronting medical education in the rapidly changing scene will be the main topic of concern at the 54th annual Congress on Medical Education and Licensure February 9-11. Sponsored by the AMA Council on Medical Education and Hospitals, the Federation of State Medical Boards of the United States and the Advisory Board for Medical Specialties, the Congress will be held at the Palmer House, Chicago. The conferees will view medical education's broad potential in the light of four factors — the changing characteristics of the nation's population, sociological trends, economy and medical knowledge — and the implications of these factors on medical education, medical research and medical care.

### **AMA To Co-Sponsor Symposium at AAAS Meeting**

A program on normal and abnormal aspects of the skin will be sponsored

jointly by the AMA's Committee on Cosmetics and the Society for Investigative Dermatology December 28-29 during the 124th annual meeting of the American Association for the Advancement of Science in Indianapolis. The two-day symposium entitled "The Human Integument — Normal and Abnormal" will be presented before the medical sciences section of the AAAS. Four major topics will be discussed.

## *Announcements*

Members interested in displaying scientific exhibits at the next Annual Session of the Arkansas Medical Society should contact Dr. John Olson, 1500 Dodson, Fort Smith, as soon as possible. The meeting will be held at the Arlington Hotel in Hot Springs May 5th, 6th, and 7th, 1958.

Space for scientific exhibits will be very limited and they should be designed with this in mind. Dr. Olson requests that a full description of your exhibit accompany your application.

The Twelfth Annual Symposium on Fundamental Cancer Research will be held March 6, 7, and 8, 1958 at The University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas.

The topic for the Symposium will be "Radiation Biology and Cancer". The first day will be devoted to papers from the staff at M. D. Anderson Hospital which relate to the general symposium subject. The final two days of the program will consist of papers presented by recognized authorities in radiation research.

### **American Board of Obstetrics And Gynecology**

The Part I Examinations of the American Board of Obstetrics and Gynecology, are to be held in various parts of the United States and Canada, on Thursday, January 2, 1958, at 2:00 p.m.



## PERSONALS AND NEWS ITEMS

Six Arkansas physicians are among the 42 physicians who received golden "T" certificates for serving their communities half a century, at commencement exercises of the University of Tennessee Medical Units September 23. The fifty-year graduates are **Dr. O. J. T. Johnston** and **Dr. Lorenzo Tipton Evans** of Batesville, **Dr. J. J. Danner** of Kensett, **Dr. Wyley Roark** of Hermitage, **Dr. W. H. Smith**, Bono, and **Dr. J. L. Weathers** of Salem.

**Dr. W. Alfred Woodcock**, a Hot Springs physician and surgeon, has accepted an offer by the Methodist Church to take over the Menard-MacDougall hospital in Nome, Alaska. Dr. Woodcock left by plane in September to assume his duties at the 25-bed institution, which is the only one-doctor hospital to be accredited by the American Hospital Association. His family plans to join him in Nome next summer.

One of the state's oldest practicing physicians, **Dr. T. C. Birdsong** of Shiloh, who is a member of the Sugar Loaf Lodge, F. & A.M., was recently presented with a 50-Year Pin by the Grand Lodge of the State of Arkansas.

**Dr. Granville L. Jones**, Superintendent, Arkansas State Hospital, announced the appointments of **Gerald Reynolds**, Ph. D., of Pensacola, Florida, as Clinical Psychologist; and **J. P. Graves**, M. D., of Wichita Falls, Texas, as Chief of Medical and Surgical Service, during the month of June 1957. **Hans B. Molholm**, M. D., of Columbus, Ohio, was appointed Director of Research and Education on August 1; and **Charles V. Taylor**, M. D., of Pineville, Louisiana, Clinical Director, on August 26. **E. I. Shaw**, M. D., of Terrell, Texas, joined the medical staff at the State Hospital on September 16.

## *Proceedings of Societies*

The Craighead-Poinsett Medical Society met October 2, 1957, at the Jonesboro Country Club. Dr. Winston Braun, Memphis, Tenn., discussed "Uterine and Vaginal Bleeding." "Drug Eruptions" was the title of the address given by John W. Baird also of Memphis.

A film, "Diagnostic and Therapeutic Advances in Liver Disease", was shown at the meeting of the Columbia County Medical Society held in September at Martel's Lakeside Lodge in Magnolia. The physicians present had a discussion of the Asian flu.

Southeast Arkansas Medical Society and Auxiliary met Monday, September 16, 1957, in the Greystone Hotel in McGehee. The 35 doctors and their wives heard Dr. Drew Agar and Dr. F. R. Buchanan of Little Rock discuss treatment for Asiatic flu. At the women's meeting, Mrs. Louis Hundley reported on the fall conference and board meeting of the State Medical Auxiliary held in Little Rock recently.

Dr. L. H. McDaniel, Tyronza, addressed a meeting of the Hot Springs-Garland County Medical Society recently. His topic, "Does the General Practitioner Deserve Hospital Privileges?" is one which he delivered before the general practitioner's section of the Southern Medical Society meeting in Miami in November. Dr. McDaniel is the Arkansas Medical Society's candidate for the American Medical Association's "Doctor of the Year" award.

The State Medical Society headquarters office has furnished each county medical society secretary with a copy of a booklet entitled "Medicolegal Forms, with Legal Analysis". The booklet, published by the legal department of A.M.A. should prove most useful as a guide for the many forms for consent to operations, artificial insemination, autopsy, those having to do with patient's right of privacy, confidential communications, and

others. It may be borrowed from your county secretary or a copy may be obtained by writing Arkansas Medical Society, 218 Kelley Building, Fort Smith, Arkansas.

## COUNCIL MINUTES

Hotel Marion

Little Rock

10:30 A. M.

Sunday, October 6th, 1957

The Council of the Arkansas Medical Society met at 10:30 a.m. on Sunday, October 6th, 1957. Present were: Kolb, Hundley, Monfort, Brown, Verser, Edwards, Thomas, Dalton, Wade, Jr., E. Shuffield, Fowler, Fairley, Millwee, Simmons, Kennedy, Applegate, Brooksher, Robins, McDaniel, Richardson, J. Shuffield, Hyatt, Olson, Rodgers, Kahn, Dean Lawrason, C. Randolph Ellis, William Langston, Ben Saltzman, Thomas Johnston, James Mashburn, Mr. Warren, and Mr. Schaefer. The Council transacted business as follows:

I. Mr. Schaefer read the minutes of the Executive Committee meeting held July 28th in Little Rock and, upon the motion of Edwards and Wade, the Council approved the actions therein.

II. A. Mr. Schaefer discussed several phases of the Medicare Program. The Council approved a Medicare fee for Septectomy submucous resection of \$130.00, upon motion of E. Shuffield and Dalton.

B. Upon the motion of Edwards and Dalton, the Council directed that a final overhead rate for administration of the Medicare Program of \$2.50 be submitted to Medicare's Washington Office.

III. The Council directed, upon the motion of Hundley and Wade, that a notice of the new VA Fee Schedule be published in the Journal.

IV. Hundley presented a letter from the Section on E.E.N.T. regarding an attempt by the optometrists to be permitted to refract and fit glasses for welfare patients. Upon the motion of Thomas and Monfort, the Council voted to oppose participation of optometrists in the remedial eye service in order to guarantee that

welfare patients would receive only the best care.

V. Hundley then discussed the transfer of Cancer Commission Funds to the Welfare Department. Upon the motion of Dalton and Edwards, the Council voted that:

(1) the Arkansas Medical Society go on record as requesting that Cancer Commission funds be restored to the Commission and that our Legislative Committee be instructed to introduce legislation to this effect.

(2) that the Governor and the Welfare Department be informed of specific cases of medical indigents who do not meet welfare standards, recommending that either the Welfare Department liberalize its rules to include these cases or that the Governor furnish funds to the Commission from his emergency funds to cover border-line cases.

VI. Mr. Schaefer read the audit report of the State Medical Examining Board, including the report of the Physical Therapists Board. Upon the motion of Olson and Thomas, the Council accepted and approved the report.

VII. Upon the motion of Wade and Edwards, the Council voted to approve Society cooperation with the Sears-Roebuck Foundation in their efforts to assist rural communities to build medical facilities.

VIII. After discussion of the AMA request that a Committee on Auto Safety be formed, it was moved by E. Shuffield and seconded by Simmons that the Chairman appoint such a committee pending approval of the House of Delegates. Upon the Council vote, Chairman Kolb appointed Lewis Hyatt as chairman, with the vice councilors to serve as the committee.

IX. Verser pointed out that the death of M. L. Harris has left a vacancy on the State Medical Board from the Second Congressional District. Millwee, seconded by E. Shuffield, nominated Hugh Edwards and the Council designated him as the Society's nominee to be presented to the Governor for appointment.

X. After it was moved by E. Shuffield and seconded by Dalton, the Council voted to go on record as being opposed to any liberalization of the Blue Cross-Blue Shield policy to include payment of all



branches of the healing arts for services rendered by practitioners other than Doctors of Medicine and Doctors of Dentistry.

XI. Lawrason then discussed problems of the Medical Center with particular emphasis on those created by the refusal of city and county governments in Pulaski County to implement the new law establishing patient quotas. Upon the motion of Hundley and Dalton, the Council voted to recommend that the Public Relations Department of the University publicize the information submitted by Lawrason.

XII. Ellis then discussed arrangements for the 1958 Annual Session. The Council approved the arrangements of commercial exhibits and authorized the Committee to make whatever plans it felt best for the Tuesday night dance.

XIII. Upon the motion of Shuffield and Monfort, the Council voted to have the Society headquarters send out a letter to all members as submitted by the Nurses Association and approved by the Liaison Committee of the Arkansas Medical Society.

XIV. Monfort reported on the activities of the Insurance Committee and requested all members to send factual evidence of insurance abuses to the Chairman of the Insurance Sub-Committee, Dr. Sam Jameson of El Dorado.

XV. Upon the motion of Verser and Dalton, L. H. McDaniel of Tyronza was elected as Arkansas' candidate for general practitioner of the year.

XVI. William Langston reported on the progress of the Jeff Banks Memorial Student Aid Fund.

The Council adjourned at 3:30 p.m.

James M. Kolb, M. D.  
Chairman

## *Woman's Auxiliary*

Four meetings this year, with emphasis on "Today's Health" and mental health, will make up the year's program for Sevier-Polk County Medical Auxiliary. The October meeting was held in DeQueen; the December meeting will be

held in Mena; DeQueen will be host for the Doctor's Day meeting in March, and the post convention meeting will be held in Mena. Mrs. Wayne Pullen of DeQueen is president this year.

"Care of the Aged" was the subject of a program presented by Mrs. J. G. Gladden of Harrison to Boone County Medical Auxiliary in October. Mrs. Gladden described the growth of Hillcrest Home for the Aged, a Boone County project, which was opened in 1953; average age of the guests is 82 years.

Sebastian County Medical Auxiliary started its year's program with a coffee at the home of the President, Mrs. Marlin Hoge, in October. Auxiliary members were also dinner guests of the medical society in October. Entertainment was furnished by the Key-Aires, a piano-organ duo. Arrangements were in charge of Dr. Ken Thompson, Dr. Zack Hornberger, and Dr. L. A. Whittaker.

Mrs. Jack Kennedy, state auxiliary president, attended the conference for presidents and presidents-elect in Chicago from October 21 through October 23. County auxiliaries already visited so far this year by Mrs. Kennedy include: Pope-Yell at Russellville on August 13; Bowie-Miller with Sevier-Polk at Texarkana, October 8; Washington County at Fayetteville, and Benton County at Rogers on October 11; Johnson County at Clarks-ville, October 12; Pulaski County at Little Rock, October 16; First Councilor District (Green-Clay, Craighead-Poinsett Counties) at Paragould, October 24; Jefferson County at Pine Bluff, November 1; Sebastian County at Fort Smith, November 4; Boone County at Harrison, November 5; Franklin County at Ozark, November 6; Union County at El Dorado, December 3; and Independence County at Batesville, December 10. Mrs. Kennedy will be guest of Garland County Medical Auxiliary at Hot Springs, February 16, and of Southeast County Auxiliary at McGehee March 17.

Mrs. Louis Deager of Danville was hostess to the September dinner meeting of

the Pope-Yell Medical Society Auxiliary. The subject of the program was "Safety". Every member made a hat with the theme for trim suggesting stairs, broken glass, scissors, pots, pans and other house hazards. The hats were modeled and Mrs. Charles Wilkins was commentator. The president, Mrs. David Williams, presided over the business session.

## BOOK REVIEWS

**Expectant Motherhood;** Nicholas J. Eastman, Little, Brown & Company, Boston, 1957. Pp. 198, \$1.75.

This book was written for expectant mothers and their husbands. It is written in terms which the average lay individual can understand. It includes practically everything that the normal woman should expect during pregnancy, labor, delivery and her post partum period. Since so many confusing articles concerning maternity problems Expectant Motherhood is recommended to pregnant women. Clyde Rodgers

**Clinical Examinations in Neurology.** Sections of Neurology and Section of Physiology of the Mayo Clinic. W. B. Saunders Co. Philadelphia and London. Pp. 370. 1956.

This textbook is designed to teach the fundamentals of how to perform a clinical examination in neurology. It is not a textbook of neurology. Within the scope of teaching a method of eliciting a neurological history and performing a neurological examination, this book is excellent. The reviewer would prefer a somewhat greater detailing by graphic methods of the reflexes, sensory pathways, etc. There is a good chapter in this book on electromyography and the stimulation of peripheral nerves and muscles. The chapter on biochemical and pharmacological aids in diagnosis is worthwhile but not remarkable. This book is recommended as a textbook of neurology for students and housestaff.—A. K.

**Physiologic Principles of Surgery.** Leo M. Zimmerman, M.D. and Rachmiel Levine, M.D. W. B. Saunders Company. Philadelphia and London. Pp. 988. 1957.

This textbook has been written by a group of physicians and edited by Drs. Zimmerman and Levine. The contributing physicians are all outstanding men in their respective fields. The physiology of the outstanding surgical diseases of each organ is discussed. Inasmuch as this book of approximately 1,000 pages covers 36 different subjects, it is obvious that some organ systems have to be treated more lightly than what one would consider ideal. For example, a ten page chapter on acquired cardiac lesions is hardly enough to discuss this big and important topic. This book is well written and well edited. It is not a complete reference book. This book would be a valuable acquisition to any physician's library.—A. K.

## TUBERCULOSIS ABSTRACTS\*

Sponsored by  
The Arkansas Tuberculosis Association

### Basic Problems in the Diagnosis and Management of Tuberculosis

By Howard M. Payne, M.D.,  
The West Virginia Medical Journal, May, 1957.

*Early Diagnosis.* The photofluorographic process and the wider use of X-rays disclose many thoracic lesions which when not frankly tuberculous, require careful clinical study and observation. On general hospital care this may be an expensive procedure. The concept of an asymptomatic illness which has not caused a loss or impairment of physical power is rarely familiar to the patient and he is apt to regard the physician who insists on clinical studies with faint ridicule. Here obviously we need a program of extended education which will teach the public and many general practitioners the need for early studies of chest X-ray findings in the absence of symptoms.

*The influence of general factors.* It is well known that economic and vocational status influence the potential severity of a tuberculous lesion. Among young women the probability of an apical lesion becoming active increases with pregnancy, particularly if the standard of living is low. Tuberculous lesions are potentially active among the aging, particularly among pensioners who have lowered their standard of living, or have substituted alcohol for more nutritious elements of diet. Among those under 5 years of age, a tuberculous infection is generally to be regarded as carrying a grave prognosis.

*Intercurrent disease.* Patients with diabetes in any age group are prone to develop progressive tuberculosis. The combination of an X-ray lesion and diabetes is a signal for vigorous study and early treatment.

*Malnutrition.* Malnutrition may be a serious contributing factor to tuberculous activity and progression.

*Industrial dust exposure.* The combination of exposure to silica dust and tubercu-



lous infection precedes the development of massive progressive disease in the lung. Similarly the combination of tuberculosis and pneumoconiosis of coal workers apparently leads to a massive progressive fibrosis which can be recognized from characteristic X-ray findings and the history of dust exposure. The patient's general background should be considered, once an abnormal chest X-ray is found.

*Factors in Differential Diagnosis.* Aside from the background of the patient differential diagnostic studies are needed. These vary according to the type of lesion. A high index of suspicion is a paramount need in the recognition of bronchial and other forms of thoracic carcinoma. One must be prompt to use surgical consultation and bronchoscopy. It may be well to remember that recurrent episodes of pneumonia or shortness of breath, of nonproductive persistent cough, of chest pain or hemoptysis, may be more significant than the X-ray findings. Inexplicable thoracic symptoms always require careful study to rule out carcinoma.

*Other Chronic Pulmonary Diseases.* Many of the other chronic pulmonary diseases such as bronchiectasis, suppurative pneumonitis and chronic emphysema can be recognized from a careful radiologic study and a clinical and laboratory evaluation. Testing of sputum for tubercle bacilli is always a wise precaution.

*Tuberculin Testing.* The intradermal tuberculin test is a basic diagnostic weapon. At the present time there is considerable disagreement concerning the meaning of positive reactions obtained with strong dilutions of tuberculin. There is a possibility that positive reactions to strong dilutions are due to some cross sensitivity rather than to tuberculous allergy. Many clinicians regard induration in excess of 5 mm. largest diameter as positive only when the maximal doses employed are 0.0002 mg. of PPD or 0.1 mg. of OT. Completely negative reactions to the intermediate dosage, or larger, rules out the presence of tuberculosis in the absence of a premorbid state, cortisone or ACTH medication or extremely high fever. Many adults in middle-age have negative reactions and our diagnostic problem is thereby simplified.

*Sputum Testing.* Three successive morning specimens of the sputum when pooled and examined by smear and culture give evidence of the presence of tubercle bacilli in the majority of new cavitory cases. This method is as reliable as the patient who collects the specimen according to instructions.

In too many cases expectoration is absent. Gastric lavage is satisfactory on patients under study in the hospital but it is not practical as an office or clinical procedure. On our service we have studied the inhalation of nebulized water as a means of provoking cough and expectoration. By this method a penicillin nebulizer pump is employed, attached to a De Vilbiss No. 41 nebulizer. Sterile water is inhaled by the patient until cough and expectoration produce an adequate specimen. This method is used both in the diagnosis and control of treatment. It appears to be applicable to ambulant cases where gastric lavage cannot be done.

*Problems in Treatment.* The basic treatment of tuberculosis is dependent upon the following factors:

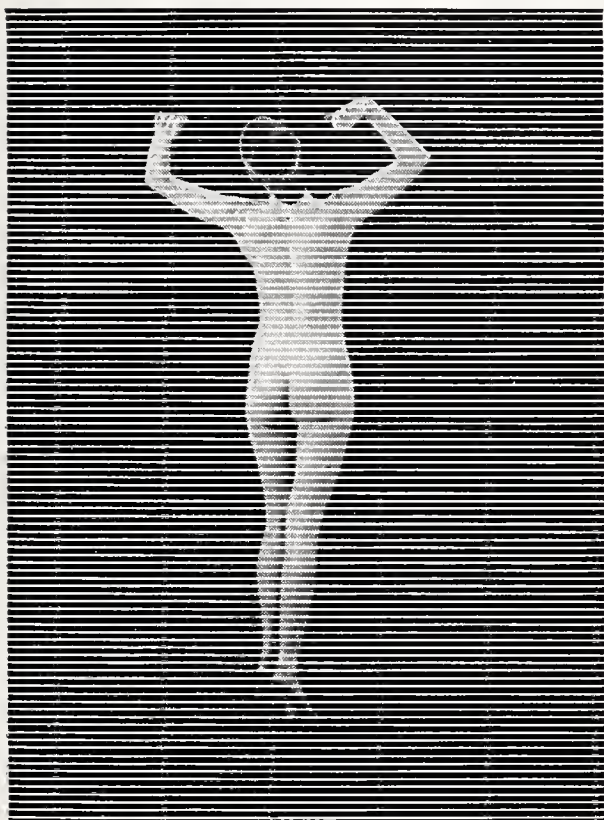
1. Adequate bacteriostasis through drugs.
2. Healing of the damaged lung through rest, nutritional management and graded exercise.
3. Removal of diseased lung which remains potentially active in the face of bacteriostasis and the normal healing process.
4. Physical, occupational and emotional therapy which will restore patients to independence.

Adequate bacteriostasis requires the early and vigorous use of drugs. On our services we use Isoniazid, 5 mg. per kilo, and Steptomycin, 1 Gm. daily for 42 to 90 days. With this regimen we have not found significant toxicity from either drug nor significant development of resistance. Following the period of intensive drug therapy the combination of Isoniazid and PAS daily now seems the most generally used routine for the maintenance of bacteriostasis. This is continued for two years for most patients but for those cavitory patients who cannot take surgical therapy, drugs probably must be continued for life.

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Vaginal discharge is one of the most common and most troublesome complaints met in practice. Trichomoniasis and monilial vaginitis, by far the most common causes of leukorrhea, are often the most difficult to control. Unless the normal acid secretions are restored and the protective Döderlein bacilli return, the infection usually persists.

Through the direct chemotherapeutic action of its Diodoquin® (diiodohydroxyquin, U.S.P.) content, Floraquin effectively eliminates both trichomonal and monilial infections. Floraquin also contains boric acid and dextrose to restore the physiologic acid pH and provide nutriment which favors regrowth of the normal flora.

#### *Method of Use*

The following therapeutic procedure is suggested: One or two tablets are inserted by the patient each night and each morning; treatment is continued for four to eight weeks.

#### *Intravaginal Applicator for Improved Treatment of Vaginitis*

This smooth, unbreakable, plastic device is designed for simplified vaginal insertion of Floraquin tablets by the patient. It places tablets in the fornices and thus assures coating of the entire vaginal mucosa as the tablets disintegrate.

A Floraquin applicator is supplied with each box of 50 tablets. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

SEARLE



The antituberculous drugs diminish the inflammatory changes in the lung by suppressing bacterial growth. Healing of tuberculosis depends upon rest, adequate dietary management and treatment of other illnesses. The medical management of the damaged lung is hardly possible without hospitalization.

The aging patient, the alcoholic, the diabetic, manage the healing of tuberculosis poorly and remain disabled for longer periods than younger patients who heal more rapidly once the suppression of bacterial growth is accomplished.

For all patients whose inflammatory residues remain after 4 to 6 months of drug therapy, surgical excision or, more rarely, surgical collapse is necessary. This is best done after adequate drug therapy and a study of the patient's breathing capacity, both being hospital procedures.

There are many patients with a history of lung exposure to coal dust who exhibit extensive disease on the X-ray, a positive

sputum, and some degree of respiratory disability. These men have pneumoconiosis of soft coal workers, with tuberculosis and progressive massive pulmonary fibrosis. Drug therapy may control the growth of bacilli, fever and malaise disappear, and there is an increased sense of well-being. However, dyspnea does not improve nor is there appreciable X-ray clearing. In our opinion these men can be discharged only to the most vigilant medical supervision and even then remain potential spreaders of tubercle bacilli. The early and vigorous treatment of all lung infection of soft coal workers seems indicated.

These patients and the aging are those most difficult to treat. Younger patients with no dust exposure recover and are discharged. Many others remain capable of spreading infection despite apparent recovery. For these we need hospital care and isolation, lacking clinical and home care facilities at their homes.

# The JOURNAL

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## Ulcerogenic Cerebral Lesions and Pancreatic Tumors\*\*

HANS G. SCHLUMBERGER, M.D.\*

Ulceration of the stomach or duodenum as encountered by the clinician is usually a chronic lesion in a patient who is free of other manifest organic disease. Less familiar are the cases of gastrointestinal ulceration, often acute or subacute, that are associated and probably initiated by specific lesions in other organs; viz., the brain and pancreas.

The relation of cerebral lesions to peptic ulcers was emphasized by Cushing in 1932 after he had observed several cases of massive gastrointestinal bleeding following intracranial operations. He found these ulcers to be most frequent when the lesions were anywhere in the brain stem from the hypothalamus to the ganglion nodosum (1). However, over a century ago this relationship had been pointed out by Rokitsky (2) in Vienna. In 1925 Mogilnitsky (3) had reported foci of degeneration in the supraoptic and paraventricular ganglia of the hypothalamus and in the ganglion nodosum of the vagus in four cases of chronic gastric ulcer.

In the autopsy series at the Ohio State University in Columbus we have observed several instances of multiple acute duodenal ulcers in adults following cerebral contusion, operative intervention for brain tumor, poliomyelitis, pneumococcal meningitis, brain abscess, and traumatic injury to the proximal portion of the cervical cord. Among infants and children this condition is perhaps even more com-

mon than in adults. In a series of 251 consecutive autopsies at the Columbus Children's Hospital we found 10 cases of coexistent gastroduodenal and cerebral lesions (4).

From the standpoint of the clinician it is important to keep the possibility of gastric or duodenal ulceration in mind while treating patients, particularly children, for such conditions as tuberculous meningitis or bulbar poliomyelitis. Perforation and hemorrhage are frequent complications which may be wholly unsuspected, with the result that proper therapy is not initiated. Perforation of a gastric ulcer and hemoperitoneum were found at autopsy in a 6 day old infant with an intraventricular hemorrhage due to birth injury, and in a 9 year old boy with poliomyelitis. The duodenal ulcers are somewhat less liable to perforate than those of the stomach. In 3 instances of tuberculous meningitis associated with duodenal ulcer the children died of the meningitis or miliary tuberculosis, the intestinal ulcers contributed little if at all to death of the patient. However, in one 12 year old boy who suffered profound anoxic brain damage following cardiac arrest, death occurred 4 days later due to massive gastrointestinal hemorrhage from a large duodenal ulcer. In another instance, a 14 year old boy with bulbar poliomyelitis appeared to be responding well to supportive therapy when he suddenly went into shock. Not until he passed large quantities of blood by rectum was the possibility of a gastrointestinal

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\*\*Presented April 23, 1957, at the annual meeting of the Arkansas Medical Society.



hemorrhage suspected. He died a few hours later and at autopsy 12 acute ulcers were found in the duodenum. The largest ulcer measured 2.5 cm in diameter, the floor was formed by the pancreas, and near one margin was an eroded medium sized artery.

Recently Zollinger and Ellison (5) have described a new clinical entity characterized by the presence of large, frequently multiple acute or subacute ulcers in the stomach, duodenum, or jejunum associated with pancreatic islet cell tumors. The gastric secretions are excessive in amount, the twelve-hour night specimen frequently exceeding two liters. The acidity is high reaching 100 meq. of free HCl. Subtotal gastric resection, subdiaphragmatic vagotomy, intensive medical therapy, and x-irradiation of the remaining gastric pouch usually afford only temporary relief.

The islet cell tumors are non-insulin secreting and in 10 of the 24 collected cases were multiple (6). Although in 19 instances they were listed as malignant, in the three specimens submitted to our laboratory we saw little cellular atypism or pleomorphism. The finding of metastatic islet cell tumor in adjacent lymph nodes came as a surprise. Many of the multiple small islet cell tumors were only found after histological examination of multiple step sections taken from all areas of the pancreatic tissue received. In one

case in which several small tumors were found in the resected body and tail of the pancreas, we could identify tumor tissue in the mucosa of the duodenum resected at a subsequent operation.

As a result of their experience with these fulminating and frequently fatal ulcerations, Ellison and Zollinger (6) recommend that a careful search of the pancreas should be made in all patients operated upon for peptic ulcer. They suggest that resection of the body and tail of the pancreas may be superior to total gastrectomy in a final effort to control secretion of a hyperacid gastric juice.

#### BIBLIOGRAPHY

1. Cushing, H. W.: Peptic ulcer and the inter-brain; In, *Papers Relating to the Pituitary Body, Hypothalamus, and Parasympathetic Nervous System*. Charles C. Thomas, Springfield, Ill., 1932.
2. Rokitsansky, C.: *A Manual of Pathological Anatomy* 2 pp. 36-37. Sydenham Society, London, 1849.
3. Mogilnitzky, B. N.: Zur Frage der Entstehungsweise und Ursache neurogener Formen des runden Magengeschwürs. *Virch. Arch. path. Anat.* 257: 109-118, 1925.
4. Schlumberger, H. G.: Coexistent gastroduodenal and cerebral lesions in infancy and childhood. *A.M.A. Arch. Path.*, 52: 43-66, 1951.
5. Zollinger, R. M. & Ellison, E. H.: Primary peptic ulcerations of the jejunum associated with islet cell tumors of the pancreas. *Ann. Surg.* 142: 709-723, 1955.
6. Ellison, E. H. & Zollinger, R. M.: The ulcerogenic tumor of the pancreas. *Surgery* 40: 147-170, 1956.

# Chemotherapy of the Leukemias and Lymphomas<sup>\*\*</sup>

FRANK H. BETHELL, M.D.\*

It is useful in discussing the treatment of leukemia to develop a concept of the growth disturbances which characterize the condition. The regulatory mechanisms which maintain the hemopoietic equilibrium and restore it after a stressful situation, such as an infection, has been met are altered in leukemia but, except in the most fulminating cases, they are not completely inactive. The objective of all specific treatment is to favor restoration of normal growth by suppressing leukemia cell proliferation. To the extent that the body retains the capacity for functional cellular differentiation, appropriate therapy may be correspondingly successful. When cell differentiation can no longer occur, the disease becomes "refractory" to treatment even though it may still be possible to suppress leukemic cell growth.

Considerations bearing on leukemia and lymphoma include the following:

- 1) The age and general health of the patient.
- 2) Type of tissue or cell that is involved in the process.
- 3) Indications of the rate of cellular proliferation as provided by the rapidity of tumor enlargement, the level of circulating leukocytes, the serum uric acid, elevation of metabolic rate.
- 4) The degree of cell differentiation as indicated by morphologic studies.
- 5) The anatomic involvement including lymph nodes, spleen, bone marrow and special organs such as skin, viscera, skeletal structures and nervous system.
- 6) Functional involvement as manifested by the type and severity of anemia, the presence of a bleeding tendency and its cause, fever, hypermetabolism, weight loss, susceptibil-

ity to infection and "hypersplenism".

Although drug therapy of leukemia, namely with inorganic arsenic as Fowler's solution, and with benzol, has a long history, the management of patients with leukemia was for many decades almost exclusively within the province of the radiologist and was limited to patients suffering with the chronic forms of the disease.

The introduction of a number of new chemical agents for the treatment of leukemia and lymphoma during the past decade has provided the clinician with a choice of therapeutic methods and has placed upon him a corresponding degree of responsibility not only for wise selection but, of even greater importance, for familiarity with the general properties and potentialities of the drugs he uses, and for careful individualized follow-up evaluation of his patients.

## CHRONIC LEUKEMIA AND LYMPHOMA

The most promising class of compounds so far used in the treatment of chronic leukemia and lymphoma are those possessing alkyl groups, which are capable of reacting chemically with constituents of the nuclei of proliferating cells and so exerting cytotoxic effects, especially on growing cells of the hemic and lymphatic systems and the epithelial cells of the alimentary tract. These alkylating agents exist in a wide variety of chemical structures of which two classes, the nitrogen mustards and the sulfonic acid esters, have found most extensive application in medicine.

"Nitrogen mustard" (methyl *bis* (B-chloroethyl) amine hydrochloride, HN<sub>2</sub>, Mustargen) was the first alkylating agent to be introduced into cancer chemotherapy.

The relatively high degree of specific action of the nitrogen mustards in clinical doses on proliferative cells of mesen-

\*The Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor, Michigan.

\*\*Presented at the annual session of the Arkansas Medical Society, April 24, 1957.



chymal origin forms the basis for their use in the treatment of Hodgkin's disease, malignant lymphomas and leukemias. Lymphatic and hemopoietic tissues throughout the body are uniformly affected with inhibition of mitotic division and depletion of cellular elements. The depression of normal hemopoietic function is a major factor in narrowing the margin of safety in the use of these compounds. On the other hand, the duration of effect is relatively short, a feature which both limits the therapeutic usefulness of the nitrogen mustards and lessens the hazards of their administration.

In the treatment of patients with Hodgkin's disease, follicle lymphoma, and lymphosarcoma, the nitrogen mustards have proved of greatest value in three types of cases. 1) In patients with moderately advanced forms of the disease, who are still responding favorably to roentgen therapy, the use of nitrogen mustard at suitable intervals between courses of roentgen therapy may control the activity of the disease more effectively than roentgen therapy alone, and the risk of serious radiation injury to healthy tissue may thereby be reduced. 2) In patients with extensive visceral, and particularly abdominal involvement, nitrogen mustard, because of its widespread distribution and selection action, is often strikingly beneficial. 3) In patients with chronic, slowly progressive disease who, as a result of much radiation therapy, have developed tissue necrosis or pulmonary fibrosis, nitrogen mustard may be the only effective form of therapy available.

There are few contraindications to the use of nitrogen mustard in the treatment of Hodgkin's disease and other lymphomas. In the presence of extensive bone marrow involvement with leukopenia, thrombocytopenia and severe anemia, the drug should be given in doses somewhat less than the usual amount of 0.1 mg. per kilo of body weight, and the intervals between injections should be lengthened to three or four days instead of the customary method of administering the material on alternate days until four treatments have been given. It should be emphasized, however, that leukopenia, even of profound degree, is not a contra-

indication to nitrogen mustard therapy, unless the depression of the leukocyte count is attributable to prior therapy.

In certain cases of disseminated lymphosarcoma and reticulum cell sarcoma with large tumor masses, treatment should be given cautiously over several weeks because of the risk of rapid tissue breakdown with toxemia and urate deposition in the kidneys.

In the presence of jaundice or other evidences of hepatocellular dysfunction, nitrogen mustard should be avoided or given with great caution, because of the likelihood of its producing further liver damage.

HN2 does, however, possess the drawbacks of requiring especially careful intravenous administration, and of producing acute nausea and vomiting. The latter effects can largely be obviated by the prior administration of chlorpromazine, followed by a second dose of 25-50 mg. 3 hours after HN2 administration.

Demonstration of the human anti-tumor activity of triethylene melamine (TEM) in 1950 was followed by extensive application of this drug to the treatment of leukemia and lymphoma. From these clinical trials there emerged the general impression that, in respect to leukemia, TEM was of greatest usefulness in the chronic lymphocytic form of the disease, in spite of adequate documentation of its effectiveness in chronic granulocytic leukemia. The similarity in chemical structure between HN2 and TEM, as polyfunctional alkylating agents, undoubtedly was instrumental in suggesting the major indications for use and the mode of therapy of the latter drug; namely emphasis on the lymphoid rather than myeloid neoplasma, and the preference for intermittent courses of administration rather than continued therapy.

Therefore, when 1-4 dimethanesulfonyloxybutane (Myleran) was reported to be effective in chronic granulocytic leukemia, its different chemical structure from the mustards seemed to explain the supposed preferential action of Myleran on myeloid and of HN2 and TEM on lymphoid proliferative disease. On the contrary, the only demonstrable differences in biological action between the two classes of

alkylating agents are of a quantitative rather than qualitative nature and have to do with rates of absorption, diffusion into cells, and chemical reactivity.

The collective recorded experience of many clinics supports the conclusion that Myleran is an effective and exceedingly useful agent for the treatment of chronic granulocytic leukemia. The usual initial dose is 4-6 mg. daily. Maintenance doses range between 0.5 mg. and 2.0 mg. daily. It has been found that maintenance dosage as a rule must be increased with the passage of time, usually as increments of 0.5 mg. per day ever 6-8 months.

Bone marrow aplasia is the only serious toxic effect of Myleran and may follow initial overdosage or prolonged administration of small doses without supervision. Other side-effects in patients receiving Myleran include amenorrhea, minor degrees of pigmentation of the skin, and occasionally gynecomastia.

It appears warranted to regard Myleran as at least equal to radiation in therapeutic effectiveness and to have other advantages, including ease of administration and dosage control, which render it the preferred form of therapy for the majority of patients with chronic granulocytic leukemia.

Although the indications for therapy are more varied in chronic lymphocytic than in chronic granulocytic leukemia the available useful agents are fewer in the case of the lymphocytic form of the disease. They include radiation, certain alkylating agents of the nitrogen mustard type, and the adrenal cortical hormones.

When a patient suffering with chronic lymphocytic leukemia has conspicuous peripheral adenopathy or if the nodes appear to be enlarging, it is customary to treat with local x-radiation. The tumefaction, as a rule, responds readily to radiation administered in relatively small doses. It is the usual practice at the University of Michigan Hospital to treat each field, of about 10 x 10 cms. size, with single doses of 300 roentgens, although some radiologists employ even lower doses of 200 roentgens or less. More intensive therapy is rarely followed by superior effects and has the decided drawbacks of producing unnecessarily severe

systemic reactions and, of greater importance, damaging skin and normal tissues and so limiting future use of an agent for which the indications may be repeated over many years. Total body x-irradiation and internal irradiation with radioactive isotopes, notably phosphorus 32, for the treatment of chronic lymphocytic leukemia have been completely replaced in the writer's practice by the alkylating agents, triethylene melamine (TEM) and P-bis (2-chloroethyl) aminophenylbutyric acid (chlorambucil, Leukeran).

TEM, since the first reports of its use as a chemotherapeutic agent in 1950, was the preferred drug for the treatment of chronic lymphocytic leukemia until the recent introduction of chlorambucil. Patients suffering with anemia, thrombocytopenia, hypermetabolism, evidences of intraabdominal or mediastinal adenopathy, visceral involvement, or extensive infiltration of marrow by leukemia lymphocytes may be benefitted by either TEM or chlorambucil. The practice followed by some clinicians of employing drug therapy in essentially asymptomatic patients for "prophylactic" reasons or in the hope of obtaining some subjective benefit has not been adopted by the writer.

TEM is a highly potent agent capable of producing profound marrow depression. Furthermore, the uncertainties of absorption when taken orally and the variable individual responsiveness to its myelosuppressive action increase the need for cautious administration. It is our practice to give 2.5 mg. by mouth, 2 hours before breakfast with 2.0 grams of sodium bicarbonate for one, two, or three consecutive days, depending on the amount of leukemic cell proliferation as estimated by the leukocyte count, and the degrees of adenopathy, splenomegaly and bone marrow involvement. No further medication is given for four weeks when another dose of 2.5 mg. is usually administered. Some patients receive 2.5 mg. every four weeks for long periods as maintenance therapy. In others, treatment may be interrupted for an indefinite time. In general, maintenance therapy with TEM is difficult to establish in chronic lymphocytic leukemia.

Chlorambucil introduced as a therapeutic agent in malignant lymphoma in 1953



is given with greater safety than TEM, but overdosage with this drug may be followed by myeloid depression, which occurs gradually and is readily reversible on discontinuing the medication. The usual initial dose range, based on body weight, is 0.1-0.2 mg./kg./day. If maintenance therapy is planned, a daily dose of 2.0-4.0 mg. is usually well tolerated.

The adrenal cortical hormones occupy a limited but well-defined place in the management of chronic leukemia. Granulocytic leukemia almost always manifests an adverse response to these agents, whereas in lymphocytic leukemia their administration may be followed by a fall in the leukocyte count and regression of adenopathy. These effects, however, are shortlived and the greatest usefulness of the adrenal cortical hormones is in the treatment of symptomatic hemolytic anemia and thrombocytopenic purpura. These manifestations of "hypersplenism" occur in about 10 per cent of patients with chronic lymphocytic leukemia as well as in some cases of leukemia lymphosarcoma and malignant reticuloendotheliosis.

Initial adrenal steroid therapy as practiced by the writer is usually carried out with predisone or prednisolone employing doses of 15 mg. every 6 hours, given simultaneously with potassium chloride 0.5 gm. and a suitable antacid. The diet should be low in salt but need not be severely restricted. After one week of high dosage the amount of the drug is gradually reduced until, in most cases, 5 mg. are taken every eight hours. In some patients hemolysis or severe thrombocytopenia may be prevented by 5 mg. of predisone or prednisolone taken every 12 hours.

Other indications for adrenal steroid therapy in chronic lymphocytic leukemia occur in advanced stages of the disease when profound weakness, anorexia, emaciation, and bleeding develop in association with almost complete replacement of normal myeloid elements by leukemic lymphocytes. In these situations continued administration of relatively small doses of the adrenal cortical hormones may be beneficial.

#### ACUTE LEUKEMIA

Since the advent of the antimetabolites and the adrenal cortical hormones the out-

look in acute leukemia has undergone considerable modification. Before these agents became available only 5 per cent of children with acute leukemia survived for one year after the diagnosis was made. At present, in the experience of a number of large clinics more than 50 per cent survive for one year. These figures are encouraging but it still remains to be seen if substantially greater progress can be made by the presently available hormonal and chemotherapeutic approaches. There is no well documented instance of a cure of leukemia being attained by any agent currently in use. Nevertheless, it is possible that a combination of sequential metabolic blocking agents with or without endocrine influences may have a permanent effect in some cases of acute leukemia.

The pterolyglutamic acid (folic" acid) analogues possessing an amino group in the fourth carbon position of the pteridine ring have proved most effective of all the antimetabolites in acute leukemia, but their usefulness is limited almost exclusively to treatment of children with the disease. Of this group of compounds, methotrexate (Amethopterin) is currently supplied for dispensing by the physicians. The dose range is 1.25 to 5.0 mg. daily given in a single dose.

A second class of antimetabolites useful in acute leukemia is the antipurine class of compounds typified by 6-mercaptopurine (Purinethol). This drug has proved to be of value in about 50 per cent of cases of acute leukemia in adults as well as in children. The usual dose based on body weight is 2.0 mg./kg./day initially, with a maintenance dose of 0.5 to 1.0 mg./kg./day. By substituting Purinethol for methotrexate after the child has become resistant to the latter a second remission may be produced.

The adrenal cortical hormones have a limited place in the treatment of acute leukemia. Frequently, the results are striking, with rapid regression of lymphoid tumors, reversal of marrow changes and disappearance of immature cells from the blood, together with subsidence of symptoms and improvement in red cell values and platelets. However, the remissions tend to be quite transitory. It is for this reason that the initial use of the

hormones is generally restricted to the extremely ill, febrile, or bleeding patient hoping that an opportunity may thereby be provided for a more lasting effect to be gained from antimetabolite therapy. In advanced and drug resistant acute leukemia moderate sized doses of the steroids are always employed chiefly for subjective effects.

The usual dose for adults of cortisone is 300 mg. of hydrocortisone, 200 mg.; and of prednisone, 60 mg. daily. Most children are treated with  $\frac{1}{4}$  to  $\frac{1}{2}$  these amounts. Sometimes, especially in adults, remissions may be gained by administration of massive doses of corticosteroids, in the range of ten times those given above, for periods of one to two weeks. Of course, with all adrenal steroid therapy, and especially with these large doses, precautions must be taken against sodium and water retention, potassium depletion and activation of peptic ulcer with hemorrhage. In general, a diet with sodium content restricted to 800 mg., supplementary potassium chloride 2.0 grams daily and an antacid before meals are prescribed.

It cannot be overemphasized that to achieve even temporarily beneficial results in the treatment of acute leukemia requires the most careful individual supervision, together with supportive therapy including blood transfusions as needed, measures to control hemorrhage and treatment of intercurrent infections.

#### SUMMARY

The alkylating agents, Myleran, TEM and chlorambucil, are the preferred forms of drug therapy for chronic leukemias.

There is no evidence of a qualitative difference in biologic actions of these compounds, but there are quantitative variations which affect dosages, absorption rates, duration of effects, and likelihood of severe myeloid depression.

At the present time, because of advantages of administration, dosage control, and relative safety, Myleran is generally preferred in chronic granulocytic leukemia and chlorambucil in chronic lymphocytic leukemia.

Continuous drug administration on individually determined maintenance dosage, has proved superior to intermittent courses of therapy in controlling activity of the leukemic process.

The adrenal cortical steroids are mainly of value in controlling secondary hemolysis and thrombocytopenia which occur in some patients with chronic lymphocytic leukemia and malignant reticuloendotheliosis.

The outlook in acute leukemia, especially in children, has been changed by the advent of the antimetabolites and the adrenal cortical hormones. Methotrexate is the starting drug of choice in children and Purinethol in adults except when the severity of the illness or the presence of bleeding indicate the urgency of employing ACTH or a corticosteroid.

Careful individualized supervision of specific therapy and judicious use of supportive measures are essential in the management of acute leukemia.



# The Problem of the Oversize Infant\*\*

J. ROBERT WILLIAMS, M.D.\*

Although one sometimes hears, usually from the father, of the successful delivery of an infant weighing 12 pounds or more babies of this size represent a small portion of the total. The weight of fully developed newborn infants averages 3200 grams (7 pounds); no more than 10 per cent weigh over 4000 grams (9 pounds) and in only about one or two in a hundred does the weight exceed 4500 grams (10 pounds). The perinatal mortality among excessively large infants, however, far exceeds that for normal size babies and may be as high as for prematures. Large babies are often injured during a difficult delivery which follows a long labor and the metabolic disturbance characteristic of the large infants of diabetic mothers causes many intrauterine as well as neonatal deaths.

## ETIOLOGY

The factors which determine fetal size are not all obvious but one of the most important is the adequacy of placental function. In most pregnancies the placental area is considerably greater than that necessary to transfer oxygen and the materials necessary for tissue growth from the mother to the baby but if the total area is considerably reduced the maximum possible growth of the fetus may be much less than that usually expected; in fact, the infant may even die in utero if the placenta cannot transmit enough to supply its needs. This can occur if the placenta is unusually small or if a good-sized portion of it is eliminated by infarction. Placental insufficiency presumably is responsible for the malnourished, under size, anoxic "postmature" infant who dies in utero or shortly after birth. In contrast the placental function of the excessively large baby must be more than adequate. Again in contrast to the "postmature" babies the gestation period for abnormally large infants is not unduly prolonged. Koff and Potter state that the average duration of

the pregnancies for infants weighing over 10 pounds is only 8 days more than for those of normal weight.

Babies tend to become progressively larger with each successive pregnancy; the third or fourth infant sometimes weighs several pounds more than the first. If one or both parents are large the infant may also be above average size at birth. Adequate maternal nutrition is essential for normal intrauterine development but over-eating and excessive weight gain do not increase the weight and size of the baby to any great extent.

The largest children are produced by women who have diabetes mellitus or the prediabetic state. As many as 25 per cent of the babies born to mothers with diabetes weigh more than 4500 grams (10 pounds).

## PROBLEMS CAUSED BY EXCESSIVE DEVELOPMENT

Most of the problems related to excessive fetal size develop during labor and delivery and pertain to the adequacy of the maternal pelvis. Almost every normally shaped pelvis of at least average capacity will permit the delivery of a 4000-4500 gram (9 to 10 pound) infant without difficulty. The successful vaginal delivery of a baby much larger than this is as much a tribute to the capacity of the pelvis and the efficiency of the uterine mechanism as it is to the skill of the physician. If the pelvis is small or malformed or if the infant is unusually large disproportion similar to that due to contracted pelvis may be encountered. In some the disproportion is so great that the presenting part cannot pass the pelvic inlet even though the uterine contractions are of normal quality. In others the head descends slowly and is delivered from the introitus after which progress ceases because the shoulders are too large to enter the pelvis. The baby will die unless it is delivered promptly because the cord is compressed between the infant and the pelvic wall and the baby cannot yet breathe itself. Forceful attempts to free the shoulders may produce fatal injury.

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If overgrowth is the result of maternal diabetes the risk to the infant is increased considerably. It not only may be injured during delivery but if born alive and undamaged may rapidly succumb to the metabolic disturbance which is so often present in these babies.

## RECOGNITION

One cannot always anticipate the birth of a large infant and even though overgrowth is suspected during late pregnancy it may be difficult to confirm. It may be almost impossible to estimate the size of the baby when the abdominal wall is thick or tense, or if there is an excessive amount of amniotic fluid. If the fundus of the uterus rises 38 or 40 cm. above the pubis and the circumference at the umbilicus is 100 cm. or more the baby is probably unusually large. Disproportion should be suspected whenever the head fails to enter the inlet at term in a multipara whose previous deliveries have been normal. Roentgen cephalometry is not particularly accurate but differences in size may be obvious if an x-ray of the infant is compared with others at a similar stage of gestation. An attempt should be made during pregnancy to recognize large babies but often the abnormal size is not appreciated until disproportion is diagnosed during labor or shoulder dystocia occurs.

## MANAGEMENT

In general the problems encountered during the delivery of an unusually large infant are similar to those caused by contracted pelvis and are managed in much the same way.

## INDUCTION OF LABOR

The elective induction of labor before term in normal women thought to have unusually large babies is generally contraindicated because it is impossible to determine fetal size accurately. Women with diabetes should often be delivered 3 or more weeks early but this is done primarily to prevent intrauterine death rather than because the baby is large.

## TEST OF LABOR

If the head is presenting the problem it is relatively simple because the patient can be given a test of labor and if the disparity between the size of the head and that of the pelvis proves to be too

great cesarean section can be performed. As many as 10 per cent of cesarean sections in multiparas are made necessary by cephalopelvic disproportion.

In multiparas the presenting part usually remains fairly high during labor but inlet disproportion should be suspected whenever the head is found to be higher than station minus 2 when labor begins. In such patients sterile vaginal examination should be performed after labor is well established. If by then the head has entered the inlet or can be depressed to the level of the ischial spines by fundal pressure inlet disproportion can be eliminated. If the presenting part cannot be depressed x-ray pelvimetry will probably indicate whether vaginal delivery will be possible.

Unless absolute disproportion is obvious the labor should be allowed to continue until the need for interference is indicated. Delivery by cesarean section should be considered if the head fails to descend after several hours of labor even though the cervix dilates at a normal rate.

## SHOULDER DYSTOCIA

If cephalopelvic disproportion is not too great the head may slowly descend through the pelvis and deliver but progress then ceases because the shoulders are too large to pass through the pelvic inlet. In some the head bulges the perineum or may even crown with each contraction but advances no further. More often the head is delivered through the introitus with some difficulty because the rest of the body is not free to descend. After the head is out, however, the chin is pulled back tightly against the perineum because the shoulders remain high and the neck has been stretched during the extraction. The shoulders usually lie in either the anteroposterior or an oblique diameter of the inlet with one below the sacral promontory and the other overriding the pubis anteriorly, thereby preventing further descent. Unless the shoulder is released and the infant delivered it will die. Forceful downward traction on the head may injure the brachial plexus or even dislocate or fracture the cervical spine and should be avoided.

It may be possible to push the anterior shoulder into the pelvis by exerting down-



ward pressure directly on it through the abdominal wall. If this maneuver fails another should be tried at once. The hand is inserted into the vagina until the tips of the first two fingers reach the infant's posterior axilla which already lies below the pelvic brim. If the fingers are crooked and grasp the posterior shoulder it can usually be rotated through an arc of 180 degrees to an anterior position as downward traction is being exerted. When this corkscrew maneuver is completed the shoulder which lay above the pubis anteriorly will have rotated to the position below the promontory formerly occupied by the shoulder which now lies beneath the pubic arch. Delivery from this point usually is not difficult.

Occasionally the shoulders are so large and so tightly jammed into the inlet that they cannot be turned. In this event the hand is passed along the posterior arm until it reaches the infant's hand which is seized and drawn downward over the chest and through the introitus. This reduces the bulk and will usually permit the use of the corkscrew maneuver described above. These procedures should be practiced on normal size infants.

#### RECOGNITION OF DIABETES AND PREDIABETES

The perinatal mortality in women with diabetes may be 30 per cent or more and many additional infants are lost by early abortion. It is of interest that as much fetal wastage and as many over-size babies occur in women with prediabetes as in those in whom the metabolic defect is well established. Thirty per cent of 92 women with prediabetes who were studied by Carrington and her co-workers had lost infants during previous pregnancies and 40 per cent had delivered babies weighing more than 9 pounds. The infant mortality can be substantially reduced if diabetes and prediabetes are properly treated.

It is not difficult to diagnose true diabetes but the recognition of the prediabetic state presents many problems. According to Carrington the glucose tolerance curve of women with prediabetes is normal until they become pregnant after which its character is like that of patients with true diabetes; the most important difference being that the fasting blood sugar with prediabetes is always

normal. The rise after the ingestion of glucose is abnormally high and the return to normal is delayed. Prediabetes can be diagnosed if the fasting sugar is normal but the two hour level of blood glucose exceeds 120 mg. per cent. The studies must be run while the patient is pregnant or within 48 hours of her delivery because the glucose tolerance test in prediabetic women usually becomes normal 2 or 3 days after the birth of the baby.

The importance of diagnosis and proper management of prediabetes is obvious from the results. In Carrington's patients in whom prediabetes was recognized early and treated the perinatal mortality was 1.7 per cent. This is in contrast to a 29.6 per cent mortality in those in whom the abnormality was discovered late in pregnancy or after delivery. Carrington recommends that a glucose tolerance test be run on any pregnant woman who has experienced previous intrauterine fetal death, repeated abortions or premature labors, the delivery of infants weighing more than 4500 grams, persistent glycosuria during pregnancy and polyhydramnios as well as those in whom diabetes has occurred in members of the family.

The treatment of the woman with prediabetes and of her infant is similar to that of patients with diabetes mellitus. If the metabolic disorder is mild and no complications develop pregnancy can usually be allowed to continue to term. Early delivery is advisable for those with more advanced prediabetes or in those in whom toxemia or polyhydramnios develop. Cesarean section should be performed only for obstetric complication.

#### SUMMARY

The perinatal mortality rate for infants weighing more than 10 pounds is far higher than for those of normal size. The cause of excessive development is not always obvious but diabetes and prediabetes in the mother should always be suspected. Most of the infant deaths are caused by injury during delivery or are associated with maternal diabetes and almost all can be prevented.

Carrington, E. R., Shuman, C. R. and Reardon, H. S.: Evaluation of the Prediabetic State During Pregnancy. *Obstetrics & Gynecology*: in press.

# ◆ What's NEW ◆

## Gynecology

DEANE D. WALLACE, M.D.\*

The tremendous increase in hospital and surgical expenses have made many physicians think twice before admitting a patient for dilatation and curettage. In many cases adequate tissue samples can be collected and proper uterine cleaning can be accomplished as an office procedure. Dr. John Burch (1) has been advocating endometrial biopsy since 1932. More recently, he has carried his office biopsy to the point where it is practically as thorough as a hospital curettage. A Randall suction cannula is connected to a suction source by pressure tubing. Between the cannula and the suction apparatus a glass trap is placed to collect the specimen. I use a simple water suction device for suction and a rubber stoppered two-ounce bottle to collect the tissue. Ordinarily no anesthetic is required, although a "pre-operative" sedative-analgesic is appreciated.

One of the common causes of failure in hormonal therapy of functional uterine bleeding is that treatment is not started with a "clean" uterus. Medical curettage is helpful but requires further blood loss and more delay in treatment. Office suction curettage is ideal in functional bleeding cases as the uterus can be cleaned of polyps and endometrium and treatment can be started at once.

Some physicians may hesitate to use office endometrial suction in postmenopausal bleeding. Prior to the widespread use of hormones, bleeding after the menopause usually meant endometrial cancer. In my practice, less than one in ten postmenopausal bleeders has cancer. When a thorough office suction is possible, one can feel just as safe in his diagnosis as with a hospital curettage. Of course, if

one feels his office procedure was not thorough, a hospital curettage should follow.

Exfoliative cytology seems to be here to stay. Patients arrive in the doctors' office more and more frequently for a "cancer smear." The preparation and mailing of the fresh, unstained smear has always been troublesome. Papanicolaou (2) now suggests covering the wet smear at once with one-fourth to one-half c.c. of Diaphane solution (3 parts 95 per cent ethyl alcohol to 2 parts Diaphane). Twenty to thirty minutes is required for the hard protective coat to develop. The slides can be wrapped in wax paper and mailed. Twenty minutes in alcohol-ether removes the protective coating in the laboratory.

Chronic recurrent cases of trichomonas vaginitis continue to cause significant anguish to both patient and doctor. The oral preparation we were so happy to see made available proved a failure. In most instances, treatment of trichomonal infestation is simple with rapid cures. The chronic recurrent type of infection, however, goes from month to month and from doctor to doctor. Persistence seems to be the key to successful therapy. Drs. Moore and Simpson (3) have aroused much interest by favoring emotional stress as an important factor in the symptomatology of this disease. Their opinions should be quite helpful to the doctor with this type of case.

In general, gynecologic hormonal therapy can be carried out quite satisfactorily by oral medication. Failure in treatment of functional uterine bleeding may be due to the inability or refusal of a patient to take her medicine exactly as pre-

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scribed. The new long-acting estrogens and progesterones (for example, those made by Squibb) make it possible to carry out cyclic hormonal therapy with two injections a month. Failure with this form of therapy also will occur; however, doctor error rather than patient error should be suspected, ie. 1) The bleeding was organic rather than functional. 2) Thyroid, vitamin and hematinics were needed but not given. 3) Some general disorder such as obesity or diabetes was overlooked. 4) Treatment was not started with a "clean" uterus.

An office method (fast, accurate, and simple) for doing rough hormonal assays has always been desired but honestly never expected. Surprisingly enough the study of cervical mucous smears has led

some to believe that office hormonal studies may even now be possible. Certain easily observed changes can be seen in cervical smears which will indicate the stage of the cycle, the presence of ovulation, and pregnancy. Jacobson (4) has presented an interesting series in which he predicts abortion and advises therapy using simple mucus smears.

1. Burch, John C. Endometrial Biopsy, CA, November 1956.
2. Papanicolaou, George N. Simple method of protecting fresh smears from drying and deterioration during mailing. JAMA Vol. 164 (July 20, 1957).
3. Moore, S. Foster, Jr., and Simpson, John W. Trichomonal Vaginitis: An Emotionally conditional symptom. So. Med. J. 49, Dec. 1956.
4. Jacobson, Benjamin D. Abortion; Its Prediction & Management. Obst. & Gynec. Vol. 10. July 1957.

**A TEACHING SEMINAR**  
**FROM THE**  
**UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE**

## The Local Use of Corticosteroids in Orthopaedics

F. DIXON CONLIN, M.D.§

Although cortisone is well known for its systemic anti-inflammatory effect, it evidently must be metabolized into hydrocortisone, and probably other compounds as well, before it is effective when injected into a local tissue (1). Thus, following the instillation of either cortisone or hydrocortisone into a joint, both substances rapidly disappear from the joint fluid and can be identified in other parts of the body (2). In the dosages commonly used there is little, if any, systemic effect. Hydrocortisone (but not cortisone) is, however, retained by the cells of the synovium, where it has an anti-inflammatory action (3).

After the demonstration of the usefulness of the intra-articular injection of the hydrocortisone, attempts were made to provide a preparation with a longer duration of action. First the acetate (A) and more recently the tertiary butyl acetate (B) were developed in the hope that the less soluble higher esters would be more slowly resorbed and utilized. This would give a more prolonged local, and a lessened systemic, action (4).

Simultaneously analogues of cortisone and hydrocortisone were developed which have three to five times as great an anti-inflammatory action as hydrocortisone, and yet relatively little electrolytic effect

(5). These are prednisone (delta-1 cortisone)\* and prednisilone (delta-1 hydrocortisone)\*\*.

As would be expected, the analogue of hydrocortisone, prednisilone, is the more effective of the two for local injection. These approaches have been brought together with the development of prednisilone acetate (C) and prednisilone tertiary butyl acetate (D) in the hope of producing a drug with the greatest possible duration of local action and the least possible systemic effect.

There is no single answer as to how long the esters of hydrocortisone and prednisilone are effective after local injection. In a fibrous tissue exploration often will reveal a film of the injected mass many weeks later. In a synovial cavity resorption and metabolism evidently are quite rapid, and the duration of action is only a week or two. The duration of the clinical relief, however, often long exceeds the theoretical duration of action of these drugs.

In injecting corticosteroids rigidly aseptic technique is essential, for joints and periarticular structures have little resistance to infection. The same aseptic technique should be used in entering a joint with a needle as is used in entering it with a scalpel.

If the corticosteroid is mixed with 1 per cent procaine before injection it is less painful for the patient, and the immediate relief of pain by the procaine gives assurance that the proper area has been injected. The mixture should not be injected until the probing point of the nee-

A. CORTEF (R) aqueous suspension; Upjohn 50 mg./ml., 5 ml. vial  
CORTEF (R) aqueous suspension; Pfizer 25 mg./ml., 5 ml. vial  
HYDRO-CORTONE (R) injection; Merck, Sharp and Dohme 25 mg./ml., 5 ml. vial  
B. HYDRO-CORTONE TBA; (R) Merck, Sharp and Dohme 25 mg./ml., 50 mg./ml., 5 ml. vial  
\*Old term: metacortandracin  
\*\*Old term: metacortandralone  
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dle has gently identified the point of maximal tenderness. In injecting, the needle point may be partly withdrawn and re-inserted many times, moving the point about, so that the whole of the tender area is well flooded.

Not uncommonly the pain recurs an hour or two after injection, only to subside again twelve or twenty-four hours later, presumably when the corticosteroid has had time to take effect.

While we are quite well convinced of the value of locally injected corticosteroids, a certain reserve must be held. The conditions for which it is used cannot all be reproduced in the experimental animal and are known to be liable to sudden remission. We are never sure whether a remission results from the trauma or drainage induced by the needle, from the procaine, or the trauma of its injection into the tissue, from the corticosteroids, or from chance. The statistical studies available have given highly variable results (6, 7, 8).

Probably the greatest usefulness of locally injected corticosteroids is in the management of what Kellgren (9) calls "non-articular rheumatism." This term, used for want of a better one, "embraces all painful disorders of the limbs and back which are not attributable to obvious diseases of the bones, joints, nervous system," or systemic disease. It is a good term, in a sense, for it is vague and resists the temptation to explain that which is inexplicable, and rather admits a considerable lack of knowledge about a great variety of conditions.

"Non-articular rheumatism" may occur in any mesenchymal tissue; at the origins, bellies, or insertions of muscles, in tendons and tendon sheaths, in superficial and deep bursae, in fascias, ligaments, and perhaps in cartilage.

The process evidently begins as an idiopathic lymphocytic infiltration, followed by fibrinoid degeneration of the collagen and proliferation of new fibrous tissue. This proliferated tissue may itself undergo fibrinoid change. The beautifully integrated tissue is destroyed and replaced by a more or less inflamed,

structureless mass. Should the process continue, deposition of amorphous calcium salts may occur and an inflammatory exudate, perhaps containing calcium, may form.

A great variety of etiologies have been promulgated for "non-articular rheumatism." The most popular is trauma, and while it should not be denied that trauma plays a part, it cannot be the whole story. The trauma which occurs in relation to the origin of pain in one man may have no effect on another, or even on the same man at a different time. There must be some tissue predisposition as well.

Characteristically the pain of "non-articular rheumatism" is poorly localized, and radiates up and down an extremity, often to the midline. This would be expected, for it has been demonstrated that pain originating in mesenchymal structures radiates up and down the segment or segments of the body in which that structure developed as an embryo (10). If, for example, formic acid or hypertonic saline is injected into the mesenchymal structures of the low back, the resulting pain will radiate down the leg so that the subject has difficulty in identifying the point of maximal pain (11).

This radiation of pain often prevents the patient from identifying for himself the point of origin of the pain unless he happens to have struck the tender spot. It is up to the clinician, by careful examination and palpation, to identify it.

This radiating mesenchymal pain is easily confused with radicular pain of neurologic origin. A patient with an inflammatory process in the gluteus medius, for example, may very well be suspected of having a herniated nucleus pulposus impinging upon a nerve root. This pain extends from his back down his leg; he involuntarily splints his back and leg to relieve his pain.

The underlying pathologic process is evidently much the same in the various conditions here grouped together as "non-articular rheumatism." Variations appear to be principally of tissue differences, of degree, and of accentuation on one phase of the process or another. These conditions will therefore be discussed in relation to their location, with

C. METACORTELONE (R) acetate suspension; Schering  
D. HYDELTRA TBA (R); Merck, Sharpe and Dohme, 20 mg./ml., 5cc. vial—25 mg./ml., 5cc vial

some of the common types being used as examples. Why these particular locations should be so frequently involved, rather than others, is not known.

#### AT MUSCLE ORIGINS

The connective tissue sheaths which encompass muscle fibers are continuous with the collagenous fibrous matrix which permeates and reinforces bone. Several painful, ill-defined processes occur at this juncture between muscle and bone. Because excisional surgery is rarely indicated, pathological studies are largely unavailable.

In treating these processes, one should first identify the exact point of greatest tenderness with the tip of an applicator stick. After preparing the skin, a needle is gently introduced down to the periosteum and muscle origin. The patient will readily appreciate when the involved area is reached. Two to ten cc. of one per cent procaine and fifteen to fifty mg.

of corticosteroid are then injected, the point of the needle being moved about to insure that the entire area is flooded. If the diagnosis is correct, and if the injection is adequate, relief should be complete and instantaneous; no residual tenderness should be elicitable. As the procaine wears off, there is sometimes a partial recurrence of pain which subsides in the next twelve to twenty-four hours. A second injection two or three weeks later sometimes is necessary.

1. *Epicondylitis*. (Fig. 1) An exquisitely tender area, perhaps a third of an inch in diameter, forms either on the lateral epicondyle of the humerus in relation to the origin of the extensors and supinators ("tennis elbow"), or on the medial side where the flexors and pronators arise ("golfers elbow"). Because the extensors must contract to stabilize the wrist against the flexors, grasping produces pain and involuntary relaxation of

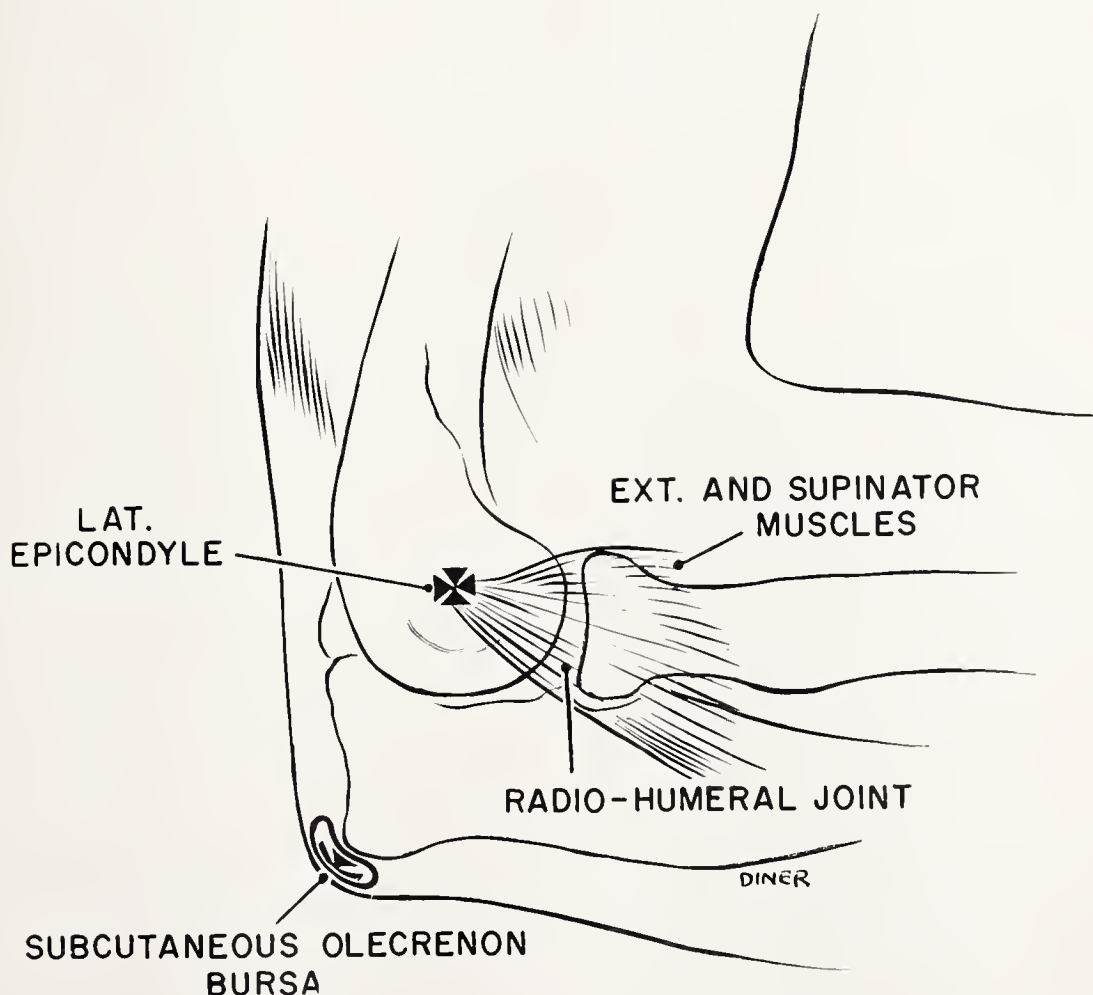


Figure 1

The epicondyle of the humerus is near. But not directly over, the elbow joint. Careful palpation will usually distinguish between the two.



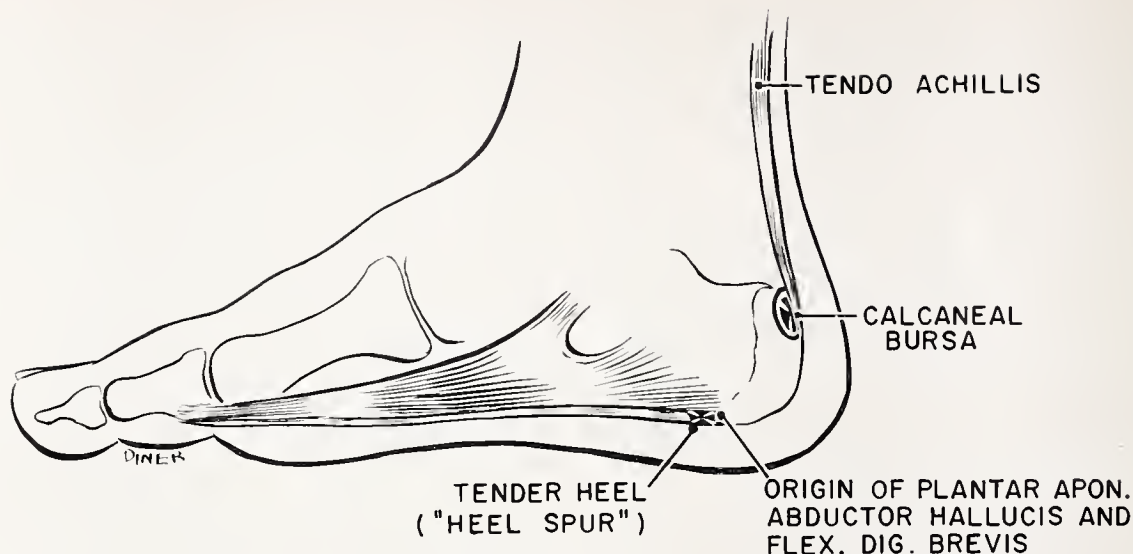


Figure II

the muscles, so that the patient tends to drop things. Although the patient often cannot identify the source of his pain, the examiner can easily demonstrate exquisite tenderness on the tip of the epicondyle, and differentiate it from pain arising in the elbow joint. The exact area can be identified further by probing with the point of a hypodermic needle before injection is done.

While injection of corticosteroids and procaine have consistently given good results, it should be pointed out that epicondylitis is prone to recurrence. One man has had five attacks in two years, both sides of both humeri having been involved at different times.

2. *Tender Heel.* (Fig. II) Very tender localized areas presumably of fibrinoid degeneration commonly occur just anterior and medial to the weight-bearing tubercle of the os calcis. The plantar fascia, the abductor hallucis and the flexor digitorum brevis arise in this area. A spur may be seen on the os calcis on x-rays of this region. While this spur may represent an inflammatory calcified deposit, it is probably often an innocent bystander, the result of aging. Corticosteroids, mixed with procaine, injected into this area from the medial side of the foot (not through the sole where there would be a tender needle puncture) are often of great help. They should be supplemented by a heel pad hollowed out under the tender area. If lipstick is daubed on the tender area, and the patient asked to stand in his shoe, the lipstick will mark

the area of the heel of the shoe which should be relieved.

3. *Adductor Tendonitis.* (Fig. III) Since the great adductors of the thigh serve as flexors when the hip is extended, and extensors when it is flexed, a patient with an inflammation at the point of origin of the adductors from the pubis has considerable pain on walking and limps. He rarely realizes that he has a localized point of exquisite tenderness, but rather has pain all up and down the leg and hip.

4. *Sacrospinalis tendonitis.* (Fig. IV) A discrete, quite tender area sometimes forms at the origin of the muscles of the spine from the posterior superior spine of the ileum. The pain is poorly localized and the patient splints himself so that the examiner finds limited motion in the spine and limited straight leg raising. It is easy to confuse this pain with that

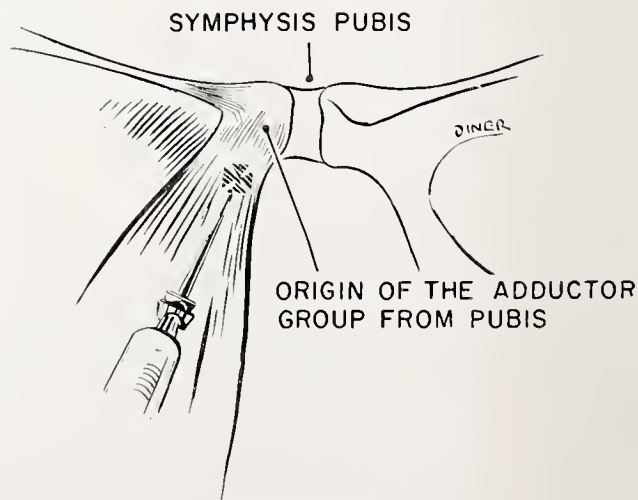


Figure III

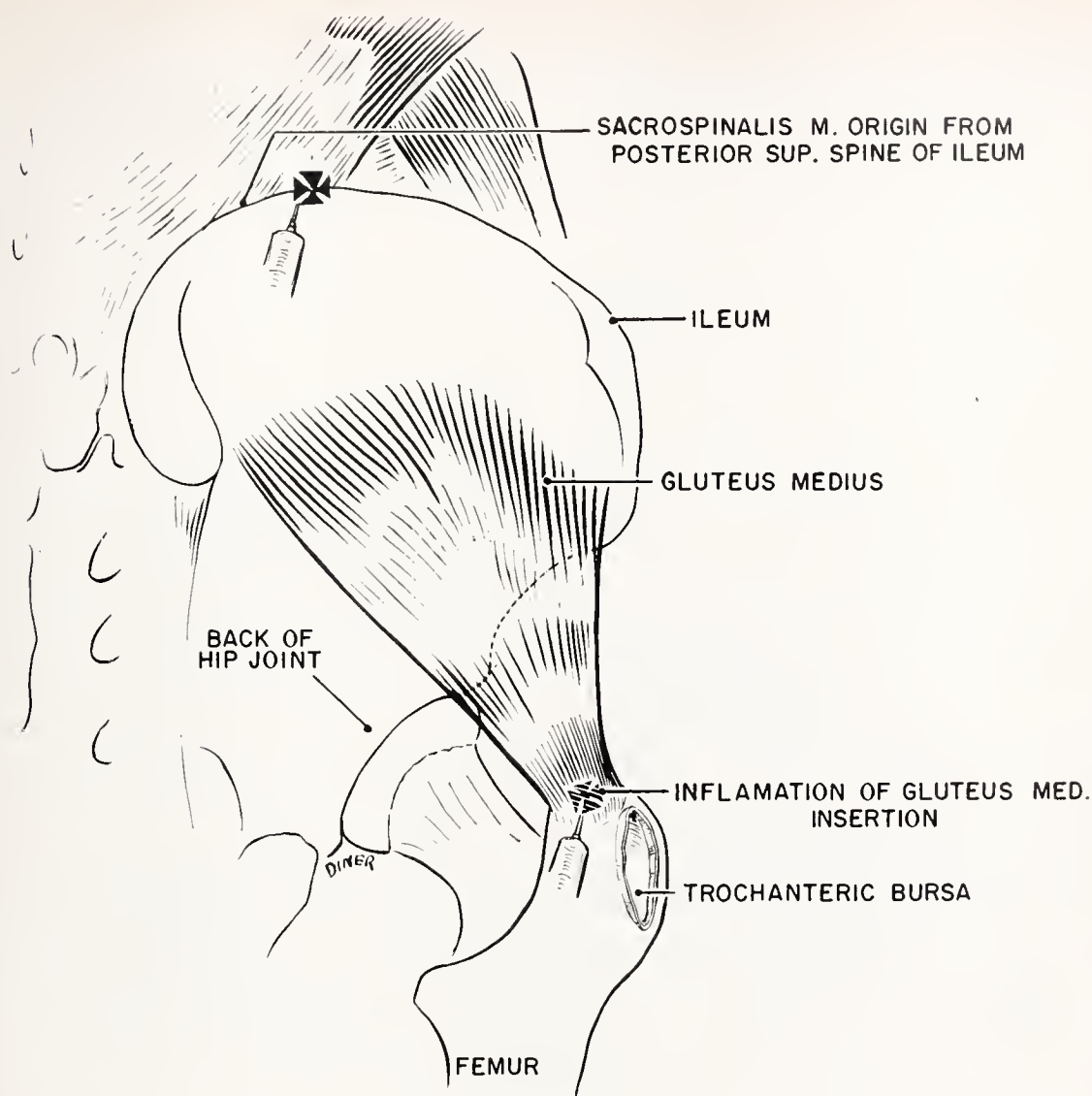


Figure IV

arising from the spine itself or from the nerve roots. Injection of procaine into the tender area has long been known to give relief. Leriche developed quite an interesting theory that a "vicious cycle" pain mechanism originated from the "trigger point." It seems more reasonable to think of this as "non-articular rheumatism," particularly since the relief is commonly of very long duration, or permanent, if corticosteroids are injected.

#### MUSCLE BELLIES

Since the rheumatic process can involve any mesenchymal structure, it would be expected that localized areas of non-specific inflammation would sometimes be found in muscles. These have been called "myositis," "fibrositis," or "Muskelhärten." Probably they are less common than some enthusiastic workers

have found them. Indeed one sometimes wonders if most of them do not have only a mythical existence. Nevertheless, patients are seen whose pain seems to originate within a muscle, in my experience most commonly in the trapezius and rhomboids. Some of these patients respond to local infiltration of procaine, with or without corticosteroids. Since the symptomatology usually does not merit surgery, biopsy studies rarely are available, and one can only speculate about the pathologic process.

#### TENDONS AND TENDON SHEATHS

A tendon has the same relationship to its sheath that a bowel has to the peritoneum. A reflection of the sheath encompasses the tendon just as the bowel is covered by visceral peritoneum, and moves freely with it. This visceral layer is connected by a mesentery, containing vascu-



lar structures, to the parietal layer which is attached to the surrounding tissues. As the tendon moves within its sheath it drags this mesentery with it, and causes the sheath to unfold at one end and to

fold upon itself at the other. An inflammatory process causing effusion and fibrosis of the sheath is therefore particularly painful at the extremes of motion or when the sheath is pressed upon. In

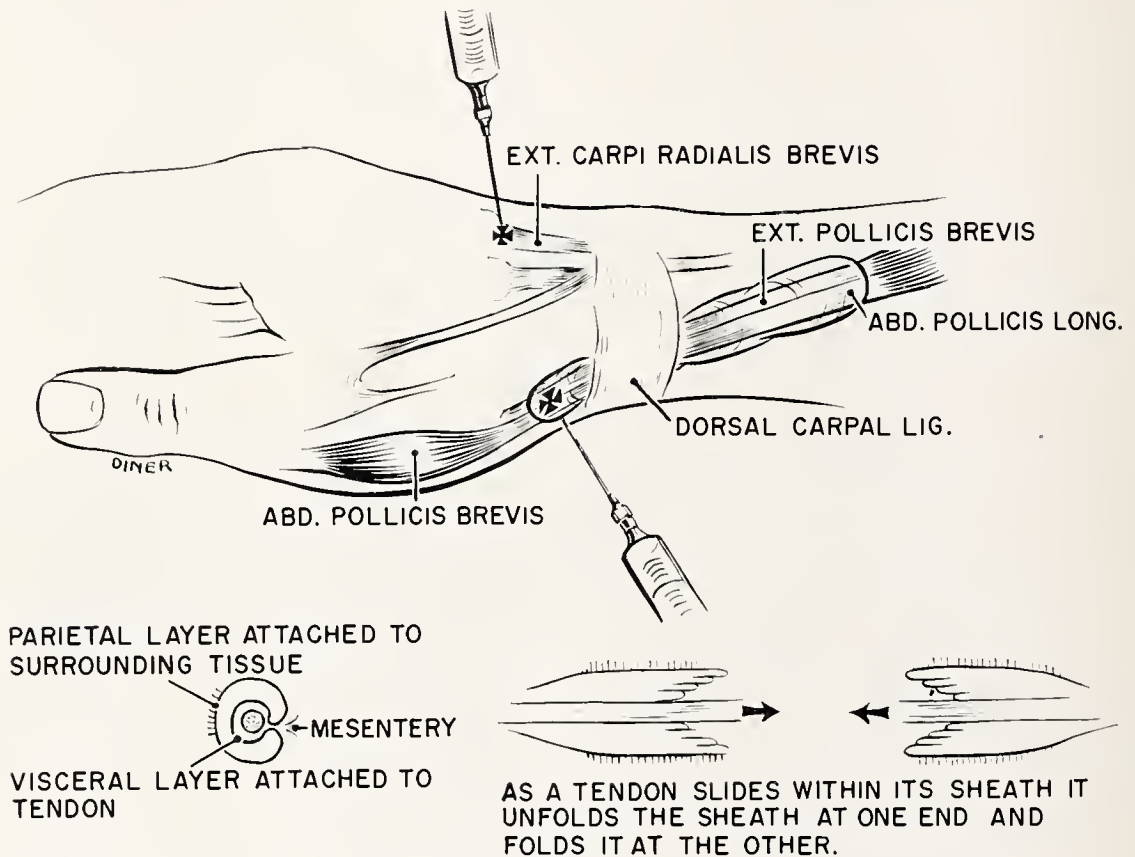


Figure V

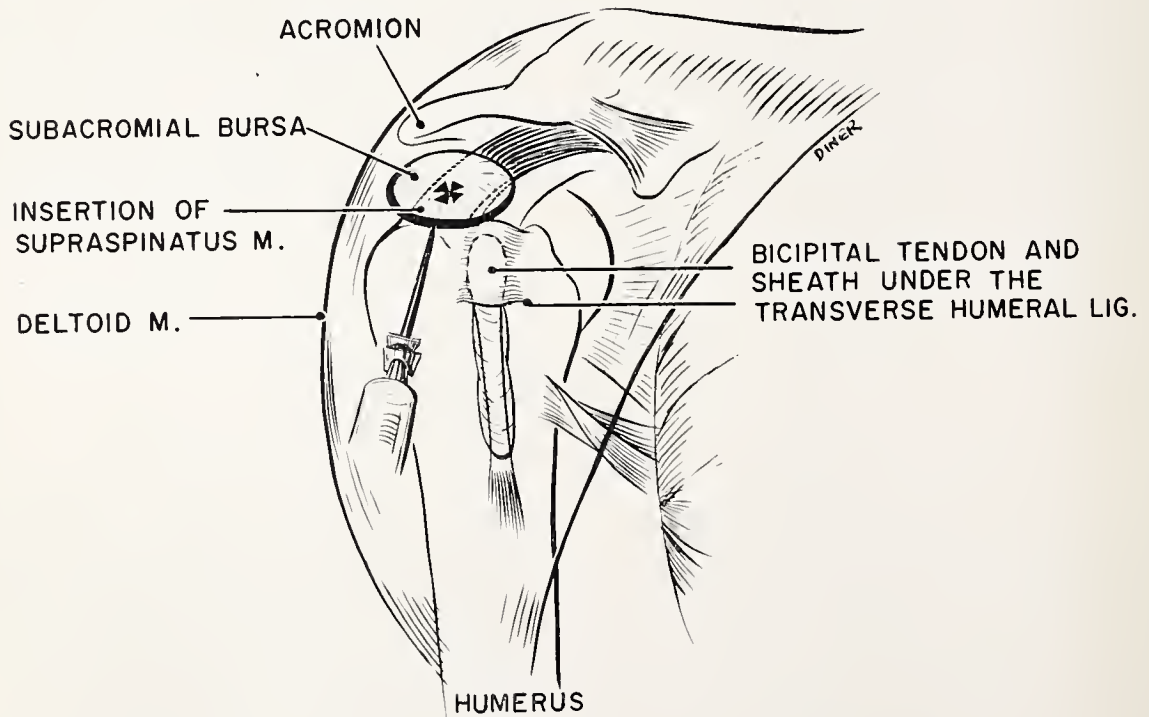


Figure VI

non-specific tenosynovitis the local instillation of corticosteroids into the sheath often produces remarkable improvement.

1. *DeQuervain's Disease.* (Fig. V) This is a non-specific inflammation of the tendons and tendon sheath of the extensor pollicis brevis and abductor pollicis longus. The pain is made much worse by forced flexion and adduction of the thumb. At one time incision or excision of the sheath was commonly done, but since the advent of local corticosteroids it has rarely been necessary (12).

2. *Bicipital Tenosynovitis.* (Fig. VI) Just before the tendon of the long head of the biceps enters the shoulder joint it passes with its sheath under a tunnel made up of the greater and lesser tuberosities and the transverse humeral ligament. Inflammation of this tendon produces severe, ill defined pain especially if the shoulder is forcibly extended. The tendon and its sheath are exquisitely tender.

3. *"Peroneal Spastic Flat Foot."* This is an ill defined clinical entity, probably

encompassing several pathologic processes. Some of these patients apparently have a tenosynovitis with swelling, tenderness and severe pain in the peroneal tendons as they pass under and behind the lateral malleolus. Because of pain they hold their foot rigidly in planovalgus, allowing no sub-talar motion. We have seen two such patients who had remarkable relief following the instillation of procaine and corticosteroids into the tendon sheath.

4. *"Trigger Finger."* (Fig. VII) As the long flexors of the fingers and thumb pass, with their encompassing sheaths, through the palm they go under tunnels, the ligamenta vaginale, which prevent their bowstringing on flexion. Occasionally a tender fibrinoid nodule forms within the tendon, accompanied by an inflammation of the sheath. If this nodule passes through the stenotic mouth of the ligamentum only when considerable force is used the digit flicks into flexion or extension when the resistant area is passed. From this the names, "trigger finger" and "snapping thumb" have evolved. The

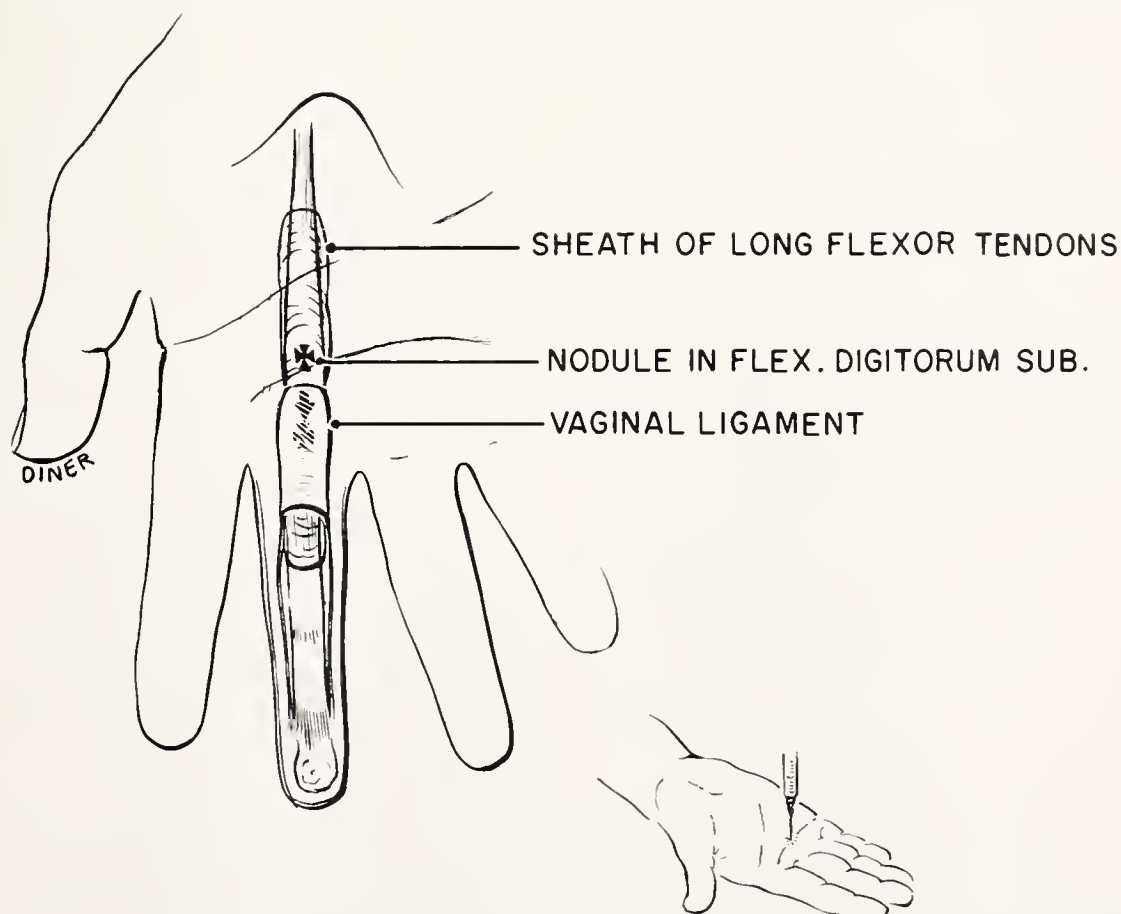


Figure VII

"Trigger finger," a form of tenosynovitis. A similar process occurs in the thumb.



process is variable. Some patients have severe pain and tenderness from the synovitis, but no triggering. Others, particularly children who have thumbs involved, have so large a nodule that the digit cannot extend, but have no pain. Injection of corticosteroids with a fine needle directly into the sheath will usually relieve the pain, but may not relieve the snapping, so that incision of the mouth of the tunnel may still be necessary.

#### MUSCLE INSERTIONS

1. Calcific tendonitis occasionally occurs about the wrist, perhaps most commonly where the flexor carpi ulnaris and the extensor carpi radialis brevis insert (Fig. V). It is exquisitely painful, but responds very well to local infiltration.

2. *Trochanteric Tendonitis.* (Fig. IV) A very tender sometimes calcified area occasionally forms where the gluteus medius inserts into the posterior superior part of the greater trochanter of the femur. Because the pain radiates from the back to the extremity, it may be confused with the pain of a herniated disk. Trochanteric tendonitis can be identified by palpation or by having the patient contract the gluteus medius against resistance. Because the lesion is in the posterior part of the insertion, it is often more easily demonstrated on external rotation than on abduction. Occasionally the nearby trochanteric bursa becomes involved.

3. *Supraspinatus Tendonitis.* (Fig. VI) Four muscles, the teres minor, infraspinatus, subscapularis and supraspinatus, arise from the scapula and grasp the head of the humerus, just as a man's fingers would grasp a croquet ball. These muscles fuse with the joint capsule and insert in a horse shoe shaped fashion about the upper end of the humerus, holding the head in the otherwise unstable joint. The subacromial bursa lies between this cuff of muscles and the overlying acromial process and deltoid muscle.

The tendon of the supraspinatus, lying directly upon the cartilage of the humeral head, normally undergoes attrition with aging. While this may only produce calcification, it sometimes causes a part of the tendon to wear completely

away. This process is evidently not painful. It happens, however, that an acutely painful and apparently unrelated inflammatory process often develops within this tendon. The localization of the process can be ascertained by noting an area of exquisite tenderness about three fingerbreadths lateral to the coracoid process when the arm is in internal rotation. If the tender area is in the cuff musculature, it will move laterally as the arm is externally rotated.

Should an inflammatory process within the supraspinatus progress, the fibrioid mass, the calcification and exudation may rupture into the overlying subacromial bursa. (See subacromial bursitis.)

#### BURSAE

Bursae are synovial sacs interposed, to eliminate friction, between two structures which must slide freely upon one another. Normally their walls are only a few cells thick and they contain only enough fluid to lubricate their surfaces. When they become inflamed the walls become thickened and fibrotic. The fluid, now of a different character, accumulates. A new hydrodynamic equilibrium becomes established, so that the bursa often remains distended even after the acute process has subsided. Interestingly, at this time simple aspiration of the contents of the bursa sometimes is not followed by a reaccumulation. If corticosteroids are instilled during either the acute or the chronic phase of a non specific bursitis, the inflammatory process and the accumulation of fluid are usually well controlled.

1. *Subacromial Bursitis.* (Fig. VI) Inflammation of the subacromial bursa presumably may begin in the bursa itself or may be due to a supraspinatus tendonitis extending into the bursa. The bursa is extremely painful as it becomes distended with an inflammatory exudate. Abduction not only tightens the inflamed supraspinatus, but also pinches the bursa under the acromion. Heat aggravates the pain. Should the bursa rupture spontaneously, the fluid drains into the large subdeltoid space and the pain is at least partially relieved.

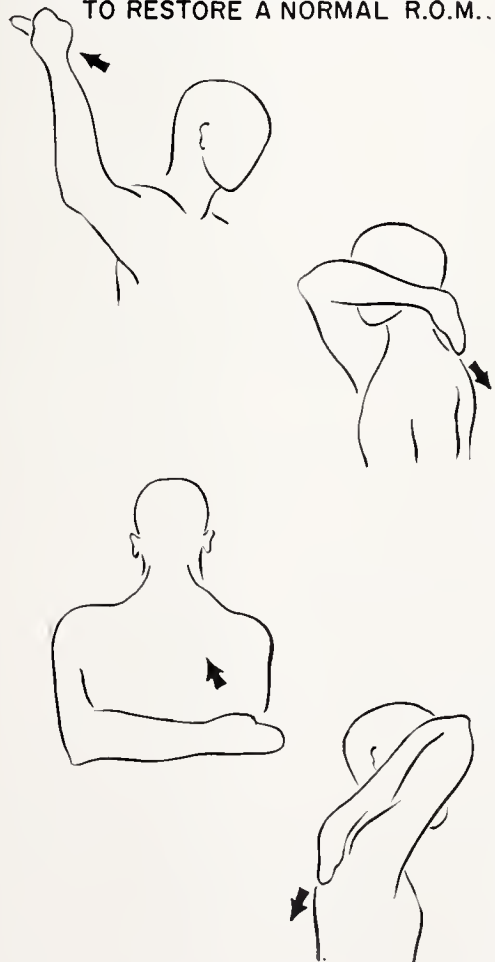
Since the bursa covers much of the top of the humerus, the method of localizing the pain by rotating the humerus is not so useful. In a slender person the distended bursa can sometimes be seen and gently palpated. It usually, but not always, shows calcification on x-ray.

Treatment of either supraspinatus tendonitis or subacromial bursitis by injection should be done with the patient recumbent with his hand upon his abdomen. The exact area of maximal tenderness is indentified very carefully, and a needle gently introduced. After the probing needle point has further indentified the point of maximal tenderness procaine is injected to relieve the pain. Any fluid encountered in the subacromial bursa is aspirated, and the bursa irrigated with the procaine solution. A new sy-

ringe containing 30 mg.s of corticosteroid mixed with a cc or two of procaine is put on the needle. The needle point is partly withdrawn, reaimed, and reinserted many times as this mixture is injected so that the medication will be disseminated throughout the tender area and multiple drainage holes will be made in the bursal wall.

If the diagnosis is correct and the injection adequate, the patient has immediate complete relief. He is astonished to find that he is able, hesitantly at first, to put his shoulder through a full range of motion. He is instructed to do this hourly. (Fig. VIII) The pain sometimes recurs when the procaine wears off, only to subside again twelve to twenty-four hours later. Diathermy, ultrasound and

THESE MOTIONS CAN USED TO  
MEASURE THE RANGE OF MO-  
TION, OR USED AS EXERCISES  
TO RESTORE A NORMAL R.O.M..



CIRCUMDUCTION EXERCISES  
BENT OVER GIVE, WITHOUT PAIN  
A FAIRLY GOOD RANGE OF MOTION.

Figure VIII

The four illustrations on the left demonstrate all of the extremes of motion of which the shoulder is capable. These positions can be used to measure the range of motion by comparing one shoulder with the other. They can also be used as exercises to restore a fully normal range of motion to a stiffened shoulder.

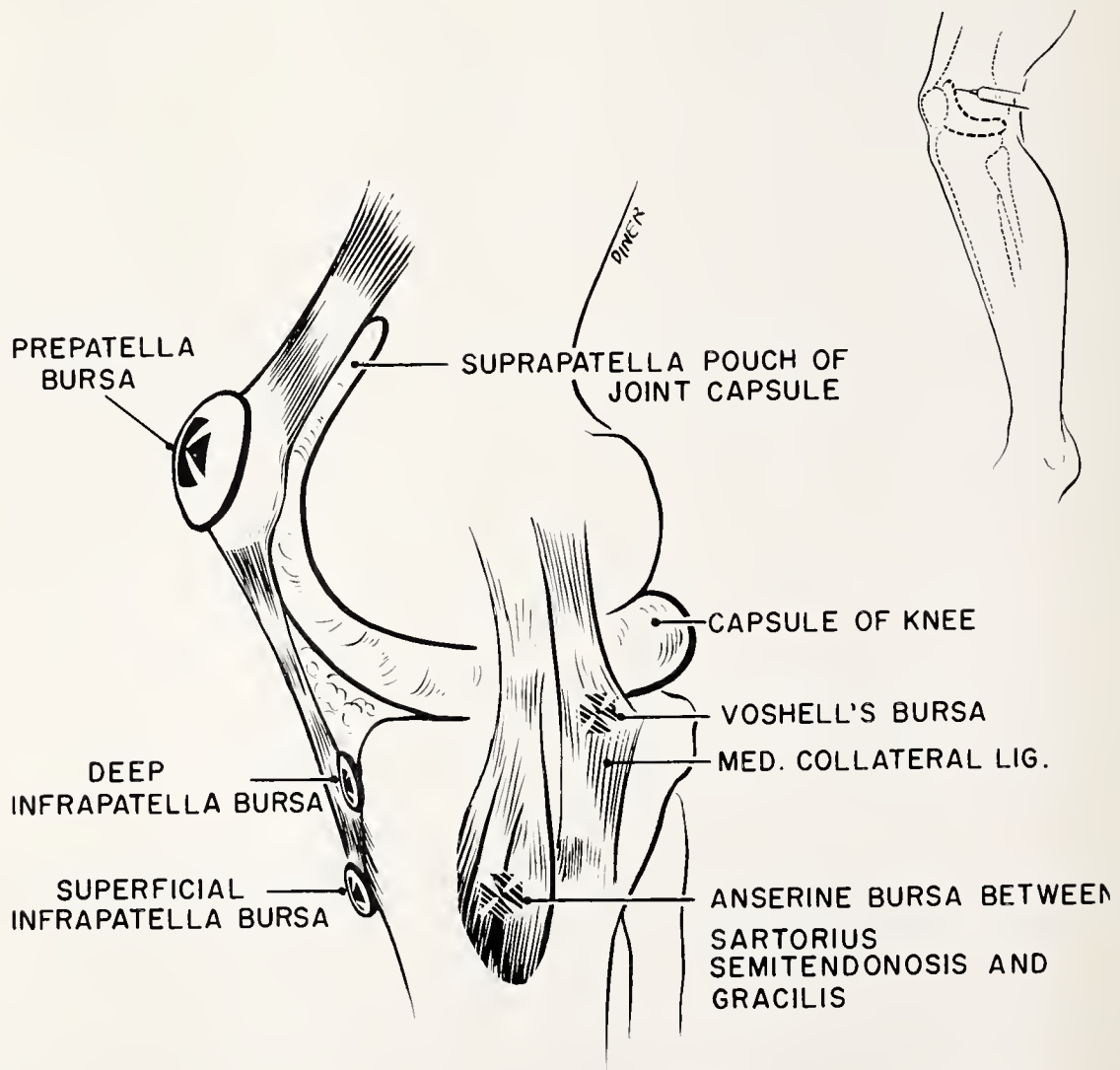


X-ray therapy are far less effective forms of therapy than adequate local injection.

Supraspinatus tendonitis, subacromial bursitis and bicipital tenosynovitis must be differentiated clinically from many things, chief among them "frozen shoulder" or "periarthrititis." This is a painful atrophy of the shoulder resulting from immobilization. It can be caused by the above inflammatory processes, by immobilization consequent to injury or splinting, or by a reflex dystrophy such as occurs following a coronary occlusion—the "shoulder-hand syndrome." "Frozen shoulder" remains painful as long as the range of motion of the shoulder is restricted. While the process is usually self limited, it may last a year or two. This time can be shortened by using exercises to restore the range of motion. Exercises sometimes can be made less

painful if corticosteroids are injected into the joint capsule. If the restriction is severe, circumduction exercises (Fig. VIII) are used at first with the relaxed arm hanging down. Quite a useful range of motion can be regained by swinging the relaxed arm in circles. As soon as the patient is able to perform circumduction exercises well and painlessly they are discontinued, for there is little to be gained by having the patient continue with what he is already able to do. He is then taught the range of motion exercises (Fig. VIII). He is free to use his other hand to assist and should force his shoulder many times a day into as full a range of motion as he can manage. When he finally regains a full range of motion, a painless shoulder will be his reward.

2. *Voshell's Bursitis.* (Fig. IX) This is an idiopathic inflammation of a small



Insertion of a needle into the knee joint is most easily done by approaching the suprapatellar portion of the capsule from the lateral side.

bursa which lies between the medial collateral ligament, the medial meniscus and the edge of the tibia (13). Extension of the knee is limited, for the central portion of the ligament slides forward and becomes taut against the bursa on extension. The joint itself does not swell. The tenderness can be located very accurately. This condition presents, of course, a rather complex differential diagnosis.

3. *Anserine Bursitis*. (Fig. IX) This is an inflammation of a bursa which lies between the insertions of the sartorius, semi-tendonosis and gracilis. This common insertion, the "pes anserina" (foot of a goose) lies just medial to the tibial tubercle.

4. *Cutaneous bursitis*. Many bursae lie between the skin and bony prominences, particularly where a large degree of mobility of the skin is required. These occasionally develop aseptic affusions, particularly after repeated trauma: "barfly's elbow" of the olecranon bursa (Fig. I), house maid's knee of the prepatellar bursa (Fig. IX) and bishop's shin of the superficial infrapatellar bursa (Fig. IX). Aspiration of the contents and instillation of a corticosteroid, followed by a pressure dressing usually will suffice for treatment.

#### LIGAMENTS

1. *Pellegrini-Stieda disease*. This is a generic term used to denote a painful, sometimes calcified, aseptic inflammation at the proximal end of the medial collateral ligament of the knee, where the ligament arises from the femur. It would seem to be a form of "non-articular rheumatism," and perhaps would be amenable to local corticosteroids.

#### CARTILAGE

*Tietzes disease*. This is evidently an idiopathic chondritis of the juncture between the sternum and the lower costal cartilages. We have used locally injected corticosteroids in one patient whom we thought had this disease. The result seemed to be satisfactory.

In all the above forms of "non-articular rheumatism" a careful differential diagnosis is most important before therapy is instituted. X-rays usually are imperative. The use of corticosteroids lo-

cally in the face of an infectious process might well result in a catastrophe.

There are several other unrelated conditions in which local corticosteroids are sometimes of value.

A. *Ganglion*. These cystic tumors appear to arise as a result of localized degeneration of fibrous tissue in relation to a joint or tendon sheath (14). A myxoid gel accumulates in the process of degeneration and is encysted. At the base of this cyst there are often many smaller, similar cysts, some of them microscopic in size. Excision of the large cyst alone without excision of the degenerated base from which it arose, will often result in a recurrence. Because ganglia have a way of arising from deep joints and emerging between complicated neurovascular structures and tendons, total excision often is quite a formidable procedure, requiring general anesthesia, a tourniquet and an experienced surgeon. If these are not available, good results can very often be achieved by instilling hyaluronidase, waiting a few minutes for the contents of the cyst to liquify, then aspirating the cyst and instilling a corticosteroid (15).

B. *Acute gout*. There is perhaps a small field of usefulness for local instillation of corticosteroids in the occasional patient whose severe pain is refractory to systemic medication.

C. *Rheumatoid arthritis*. Occasionally a patient with rheumatoid arthritis is seen whose disease is limited to one or two easily accessible joints, or who is well controlled on systemic medication except for a joint or two. Such patients may respond quite well to aspiration of a joint and instillation of corticosteroids. The relief may be only transient, lasting a few days or weeks, but sometimes it is of surprisingly long duration.

D. *Osteoarthritis*. While this primarily is a degenerative change producing or resulting from mechanical derangements of a joint, it may be symptomatic only intermittently. When there is an acute exacerbation of symptomatology with a synovitis and effusion into the joint, local instillation of corticosteroids may give relief. This, of course, does nothing to improve the underlying mechanical prob-





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1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

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**TABLETS:** Each tablet contains 0.5 Gm. ( $7\frac{1}{2}$  grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

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\*Reg. U. S. Pat. Off.





lem, but if used judiciously helps the patient over some of the worst bumps on his rough road. Injections should be given only when really necessary, for if used excessively they will of themselves produce granulomatous lesions within the joint, and will incur a considerable risk of infection to the patient.

E. *Fresh trauma.* There is some evidence that following a traumatic hemarthrosis, aspiration of the bloody fluid and instillation of corticosteroids will minimize the inflammatory response within a joint (16). This procedure, of course, is not always feasible and should be used only with considerable caution lest the danger of infection outweigh any merit it has. It does not in any way obviate the usual methods of care, but serves only as an occasionally useful adjuvant.

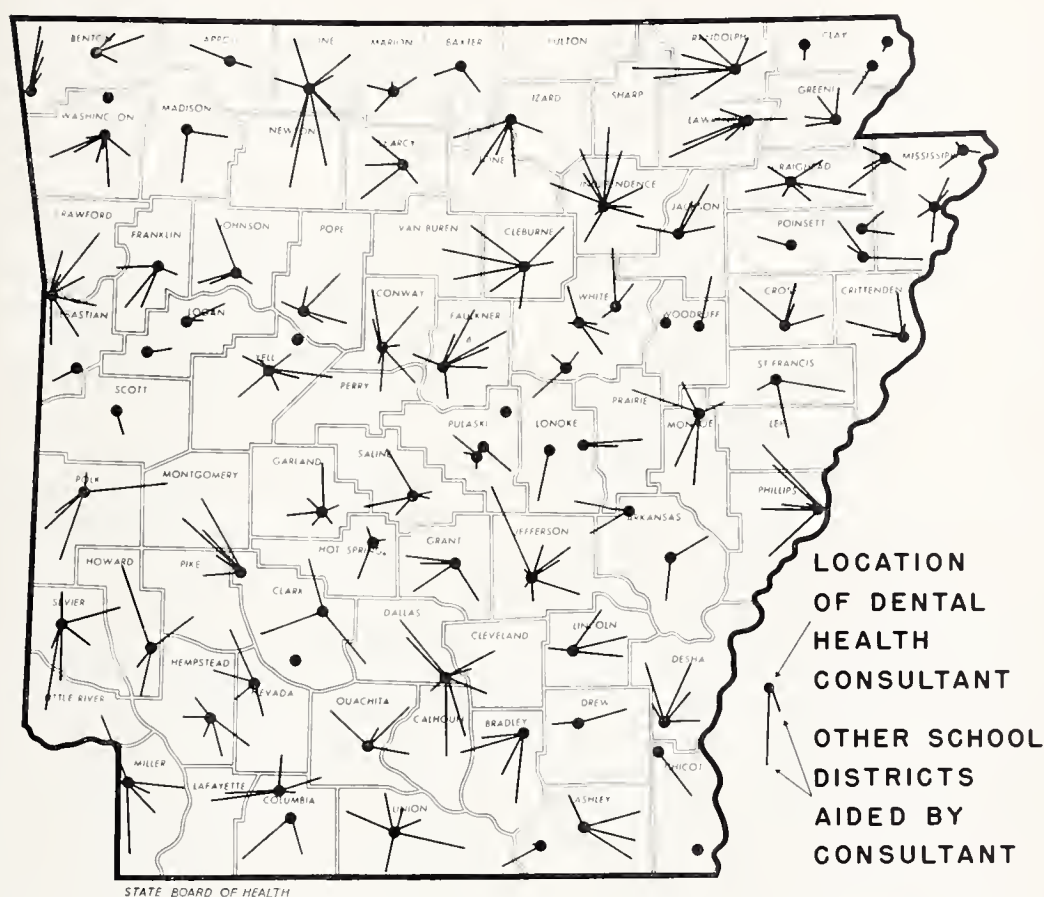
#### BIBLIOGRAPHY

1. Freyberg, R. H. Use of Hormones in Rheumatic Diseases. *J. Chron. Dis.* 2, 559-82 Nov., 1955.
2. Mantti, O. Absorption of Hydrocortisone from the Joint Cavity into the Circulation. *Ann. Rheum. Dis.* 15, 327-29, 1956.
3. Hollander, J. L. Proceedings of the 1953 Annual Meeting, American Rheumatism Association. *Ann. Rheum. Dis.* 12, 347, 1953.
4. Hollander, J. L., Brown, E. M., Jessan, R. A., Udell, L., Smukler, N., and Bowie, M. Local Anti-Rheumatic Effectiveness of Higher Esters and Analogues of Hydrocortisone. *Ann. Rheum. Dis.* 13, 297-301, 1954.
5. Hart, F. D., Clark, C. J. N., Golding, J. R. Prednisone and Prednisilone in the Treatment of Rheumatoid Arthritis. *Lancet*, 2 993-98, Nov. 1955.
6. Murnaghan, G. F. Hydrocortisone in Painful Shoulder; a Controlled Trial. *Lancet*, 2 798-800, Oct. 1955.
7. Blockey, N.J.B. The Painful Heel, a Controlled Trial of the Value of Hydrocortisone. *Brit. M. J.*, 1, 1277-8 June 1956.
8. Quin, C. E. The Use of Hydrocortisone Locally in the Treatment of Soft Tissue Lesions. *Post Grad. Med. J.* 32, 2-6, Jan., 1956.
9. Kellgren, J. H. Non - Articular Rheumatism Lectures in Orthopaedics and Rheumatic Diseases, Dedication Volume, Hospital for Special Surgery, New York, N. Y., 1955.
10. Kellgren, J. H. On the Distribution of Pain Arising from Deep Somatic Structures, with Charts of Segmental Pain Areas. *Clin. Sci.*, 4; 35-46 June, 1939.
11. Inman, V. T., Saunders, J. B. deCM. Referred Pain from Skeletal Structures. *J. Nerv. and Ment. Dis.*, 99: 660-667, May, 1944.
12. Christie, B. G. Local Hydrocortisone in De-Quervains Disease *Brit. M. J.*, 1: 1501-1503, June, 1955.
13. Voshell, A. F. and Brantigan, O. C. Bursitis in the Region of the Tibial Collateral Ligament. *J. Bone and Joint Surg.* 26: 793-798, Oct., 1944.
14. DeOrsay, R. H., McCray, P. M., and Ferguson, L. K. Pathology and Treatment of Ganglion. *Am. J. Surg.* 36: 313-319. 1937.
15. Becker, W. F. Treatment of Ganglion with Hydrocortisone. *Indust. Med. and Surg.* 22: 55-58, 1953.
16. Frankel, C. J., Webster, D. K. and Hamilton, T. M. Experimental Use of Hydrocortisone In the Traumatized Knees of Rabbits. *Arch. of Surg.* 74: 399-403, 1957.

# ARKANSAS PUBLIC HEALTH AT A GLANCE

## School Dental Health Consultants in Arkansas

### ARKANSAS DENTAL HEALTH CONSULTANTS, 1957



The Arkansas State Dental Association has sponsored two Dental Health Conferences, in cooperation with the Division of Dental Hygiene, Arkansas State Board of Health, in 1955 and 1957, at Petit Jean State Park. Dentists, physicians, dental hygienists, school administrators and teachers, PTA representatives, and health education personnel have attended. Arkansas dentists have lead the country in developing these conferences.

Out of these efforts a plan has been evolved for giving help to schools in development of their dental health education programs. Dentists all over the state have accepted the responsibility of acting as consultants to the schools in their communities and adjacent communities, as shown on the accompanying map. The 1957 Conference began the development of a practical guide for the use of the Dental Health Consultants in their work with schools. Forty dentists attend-

ed the conference, twenty-five of whom were official Dental Health Consultants.

One of the major reasons why these dentists have felt the necessity of undertaking this educational work is that they feel that the present very major problems of dental care can only be solved in the long run by fundamentally altering people's dental care habits and knowledges. The Dental Health Consultants will work wherever possible through contact with the Health Coordinator in each school, who is a member of the school faculty assigned special responsibility for development of the school health program. There has been no general organized system of consultation to schools worked out by the Arkansas Medical Society, but representatives of the Society have attended School Health Conferences at Petit Jean Mountain in the past few years, and have been very helpful in working out record forms and suggested school health policies.

\*Sponsored by the Arkansas State Board of Health



## Atomic Energy in Arkansas

ALFRED KAHN, JR., M.D.

The use of nuclear energy, (so called atomic energy) promises many industrial and medical advances. The development of this science of atomic energy is still in its infancy but its promise is so great the citizens of Arkansas should make every effort to start a program for the expansion of this field in Arkansas.

The first steps to develop nuclear energy in Arkansas have been taken. Act 386 of the 1957 Arkansas Legislature was passed to co-ordinate development and regulation of peaceful uses of atomic energy in this state. Specifically it endorses the Congressional Atomic Energy Act of 1954, describes Arkansas' position on licensing the use of atomic energy, directs a study of necessary changes in laws and regulations concerning the industrial use of nuclear energy and also sets a co-ordinator of atomic development activities.

Mr. William Rock, who has sparked the highly successful Arkansas Industrial Development Commission in acquiring new industry in Arkansas, has co-ordinated the Arkansas Nuclear Energy Committee. At a meeting of this committee on October 17, 1957, Dr. J. R. Maxfield of Dallas, Texas, stressed the necessity for the medical aspects of this program to be carried out through the Arkansas Medical Society and its component county societies.

A number of interesting points were brought out emphasizing the need for the medical societies' full participation in order to get a strong start for this program. First and foremost is the need to educate the public about atomic energy. Atomic energy is synonymous in the public mind with the havoc wrought at Hiroshima. It should be the medical societies' duty to explain to the average citizen that the peaceful use of atomic energy is quite safe when in the hands of trained personnel. In order to accomplish this type of public educational project it has been suggested that the societies set up speakers' bureaus who will address lay organizations. Naturally, this

will have to be done with people trained in the field. It was felt that there should be some authentic source of atomic energy information in the societies that could give advice to lay persons on atomic problems.

There are many civic committees which should have medical representation in order to deal with problems as: zoning near nuclear energy plants, radiation injuries in Workman Compensation cases, industrial hazards, decontamination, disaster care, et cetera.

If the State of Arkansas gives moneys for research in atomic development, it will probably attract more financial support from other sources as matching funds, gifts, and grants. Perhaps a joint program between a medical research team and the University of Arkansas Institute of Technology might enable the state to get a small reactor and eventually a large one for perhaps a multi-state area.

The attraction and holding of good personnel in many fields is dependent on good training and research facilities. The public in many instances is unaware of this fact.

It is important for all Arkansas physicians to get some indoctrination in the medical aspects of nuclear energy in order to handle emergencies and disasters. There are teaching films available, an information center at Oak Ridge, Tennessee, and medical courses all available at low cost or no cost.

The South has a natural advantage over the rest of the country in the development of nuclear energy fields. It has a more favorable population density, considerable water supplies and a favorable labor situation.

The grasping of this opportunity to get nuclear energy research, medical investigative and therapeutic tools, and industrial use of nuclear energy is something that Arkansas cannot fail to do. It will bring real medical benefits and industrial wealth.

We should back this program actively.

# Concerning Osteopathy

From MEDICAL ECONOMICS, October, 1957:

## D.O.'s MAKE MAJOR DRIVE TO IMPROVE SCHOOLS

In 1955, when the A.M.A. last seriously considered cooperation with osteopaths, the heaviest arguments against it concerned the "second-rate education" said to be offered by osteopathic schools. Since then, the D.O.'s in many areas have been redoubling their efforts to improve their schools' standards. One example:

In 1955, California's osteopaths hiked their state dues to \$300 per year (in addition to the \$75 national dues). Their object: to give added support to the Los Angeles College of Osteopathic Physicians and Surgeons. With something over 1,000 established D.O.s in the state, more than \$210,000 went to the college last year.

"The money is used chiefly for faculty salaries," says a spokesman. "And this is a long-term voluntary commitment on our part."

From Arkansas Democrat, Thursday, October 24, 1957:

## OSTEOPATH CITES LACK OF DOCTORS

The lack of country doctors is only the worse part of a growing doctor shortage, the president of the American Osteopathic Association told the Arkansas Osteopathic Association's annual fall meeting today.

Dr. Carl E. Morrison, St. Cloud, Minn., said that "unless the healing professions take drastic action, some rural areas will be without any medical care and the entire nation will be dangerously short of doctors and every other kind of health workers."

"Three factors contribute to the growing need for doctors," he said. "Even now the birth rate increases faster than medical schools can expand. As the life span is lengthened, the burden of chronic diseases grows. And within the last few years, the American people have come to demand far more complete health care than ever before."

Far too often, the Arkansas farmer cannot get a doctor for an emergency, much less for the detection and prevention of crippling diseases, Morrison stated. "Where doctors are hard to get, it is short-sighted to prevent osteopathic physicians from practicing to the full scope of their training. And it is inexcusable to discourage young doctors from settling in a state because of antiquated practice laws," he emphasized.

"With the emphasis that the osteopathic profession places on the training of general practitioners and its traditional concentration in rural areas, states like Arkansas and my own state, Minnesota, are depriving themselves and their osteopathic doctors of the greatest mutual benefit," Morrison said.

No osteopathic college graduate from Arkansas has returned to his native state during the last 10 years, he said.

(The osteopathic surgeon and physician is not recognized in Arkansas.)

"Somehow, while we find new ways to attack disease and greater facilities for training more doctors, we must persuade more of them of the value of serving in the rural areas where the need is greatest.

"This cannot be done by continuing to restrict some doctors and overworking others," he concluded.



# Medicine in the News

## Federal Medical-Health Spending For Fiscal Year 1958 (July 1, 1957 to June 30, 1958)

This is our fifth annual budget report in which are grouped together all Federal health or medical programs, their objectives described and their cost to the U. S. taxpayer listed. At least 23 Federal departments and agencies engage in some medical activity. Despite the "economy drive," these programs approximate those of last year at about 2.5 billion dollars.

The figures shown do not include all administrative costs. If a modest two percent increase is added to cover overhead, "central-service-type" costs, the totals should have to be increased by about 50 million dollars.

This year we are appending to our report for the first time essential information on the amount of payments to disabled individuals where the Federal Government puts up all or part of the money. (See page 18). Disability benefits go to 4.5 million persons. The total payments this year will exceed 3.2 billion dollars. Some of this expense is wholly Federal, some includes state funds, some employer contributions and some employee contributions. Well over 80 percent of the entire amount is from U. S. general revenue. The remainder of the Federal share is from social security and railroad payroll taxes.

In evaluating this report, remember the 3.2 billion dollar figure includes matching amounts from non-Federal sources — the 2.5 billion dollar figure does not.

### Medical-Health Budgets of Federal Departments, Agencies and Commissions for This Fiscal Year

Agency	Amount	Pages
Department of Health, Education, and Welfare.....	\$849,395,800	3-9
Veterans' Administration.....	849,374,000	9-10
Department of Defense.....	702,305,000	11
Atomic Energy Commission....	40,085,000	12
International Cooperation Administration.....	37,300,000	12
Department of State.....	15,718,110	12-13
Federal Employees Health Program.....	10,000,000	13

Department of Labor.....	8,069,476	13
National Science Foundation ..	7,500,000	14
Panama Canal Company & Panama Canal Zone Government .....	5,988,300	14
Department of Treasury.....	3,837,850	14
District of Columbia.....	3,700,000	14
Federal Civil Defense Administration .....	3,100,000	15
Department of Justice .....	1,796,000	15
Federal Trade Commission ..	1,500,000	15
Department of Commerce .....	911,300	15-16
Civil Service Commission .....	387,000	16
President's Committee for Employment of Physically Handicapped .....	182,575	16
Department of Interior .....	154,950	16
Office of Defense Mobilization ..	77,000	16
Small Business Administration .....	70,000	17
National Advisory Committee to Selective Service .....	19,000	17
Office of the Attending Physician of Congress.....	12,145	17
Total .....	\$2,541,483,506	

## AMA's Reasons for Opposing Hospitalization at Age 65 Under OASI

Announcing that it will "strongly oppose" the Forand bill for hospitalization and medical benefits under social security, the American Medical Association has explained its reasons. The Forand Bill is H. R. 9467, introduced late last session. It offers 60 days of hospitalization, plus surgical benefits, and an additional 60 days of nursing home care, to all social security beneficiaries 65 years of age and older, and the same benefits to their survivors and dependents. Says Dr. David E. Allman of Atlantic City, AMA president:

"This proposal is clearly 'socialized medicine' for a segment of the American people. Enactment would permit the federal government to withdraw social security taxes on a compulsory basis from almost the entire working population and use those taxes to reimburse hospitals and physicians for services rendered to all persons eligible to receive old age and survivors benefits. The American Medical Association has repeatedly opposed compulsory health insurance and is unequivocally opposed to this new version."

## PHS Advises Against Community-Wide TB X-ray Campaigns

Public Health Service, acting on advice of a committee of medical and public health leaders called in to re-evaluate recent changes in the nature of the tuberculosis problem, is recommending against community-wide chest X-ray campaigns for detection of TB. Instead PHS recommends that communities use tuberculin skin testing as a first step in case-finding, followed up with X-ray examinations for those with positive reactions.

## A.M.A. Bureau of Exhibits Busier Than Ever

Times have changed in the everyday business of the A.M.A. Bureau of Exhibits.

The assistant director, George Larson, mentioned recently that in "the good old days" the state and county fair season started in June and was over about the middle of September. Usually requests for A.M.A. exhibits declined after that time.

But the exhibit business has now changed to a busy one all year. One day last week, 84 crates of exhibit material were returned from showings in various parts of the country. Eighty-four crates contain a lot of material and they also represent a lot of money.

It is a job of no mean proportion to open all of the crates, set up their contents, and inspect them to see that they are O.K. for the next showing.

There has developed in the South a circuit of fairs that begins when the northern fairs close in October, and continues through February and March. This, accompanied by an acceleration of health fairs and similar expositions keeps A.M.A. exhibits on the go most of the year.

## U. S. Exhibit Planned for Atomic Energy Session

United States now is preparing the exhibit it will display at the second international conference on the peaceful uses of atomic energy, to be held at Geneva next September 1-13. Sending letters to 4,000 universities and medical schools, hospitals, laboratories and industrial firms,

the Atomic Energy Commission has invited medical and other scientists and engineers to contribute papers. Also included in the display will be films and exhibits describing U. S. Progress in the peaceful uses of atomic energy.

## Group to Educate Public on ILO

A citizens' committee has been formed to promote public understanding of the purposes, objectives, and activities of the International Labor Organization. For a long time the A.M.A. has actively opposed the principles and philosophies of this League of Nations organization. The A.M.A. has on several occasions adopted resolutions urging withdrawal of United States membership in the ILO.

Now the ILO hopes to embark on an educational campaign under the banner of the United Nations. David L. Cole, former director of the Federal Mediation and Conciliation Service, will serve as committee chairman.

A recent announcement said the new committee will be composed of leaders of industry and labor, education, information, and public affairs. Government officials, the announcement said, would be invited from time to time to meet with the committee.

## Senate Committee May Include Jenkins-Keogh in Omnibus Bill

The Jenkins-Keogh plan for tax deferment on retirement funds paid by the self-employed may be made a part of an omnibus tax relief bill for small business. The idea is under consideration by a tax subcommittee of the Senate Small Business Committee which is continuing regional hearings on general tax problems for the small businessman and the self-employed. It is planned to have a committee bill reported out and ready for floor action by late January.

## 50,000 Clergymen Get A.M.A. Pamphlets

Two new pamphlets which discuss the close relationship between religion and medicine are presently being mailed to 50,000 Catholic, Protestant, and Jewish clergymen by the American Medical Association.



One pamphlet, "The Personality of Medicine," is Dr. David B. Allman's presidential address delivered at the A.M.A. meeting in New York last June, and the other, entitled "Near Life . . . Near Death . . . Near God," appeared in the A.M.A. Journal last April. This article was written by Mr. Milton Golin of the Journal staff and a condensed version appeared in the September Reader's Digest.

### **Old Age Assistance Rolls Decrease, Total Costs Increase**

While fewer people are receiving old age assistance payments, the total amount spent on OAA continues to increase. This continuing pattern, established in past years, is reported by U. S. social security administration in a survey based on figures for last August.

OAA payments — U. S.-state relief programs — go to men and women past 65 years of age who have not qualified for social security benefits, whose social security payments are inadequate, or who have little or no other income. The steady drop in individuals on OAA is attributed largely to the expansion of social security coverage, which tends to keep more and more families off relief rolls.

### **Forand Bill, HR 9467, 85th Congress**

This legislation calls for the expansion of the Social Security Act into the medical and hospital care field. It has been referred to the House Ways and Means Committee, of which Mr. Forand is a member, and has strong backing of the AFL-CIO.

HR 9467 proposes that the federal government, through the Social Security System, pay the cost of hospital, nursing home, and surgical service for persons eligible for old-age and survivors insurance benefits.

This socialized medicine proposal for a large and growing segment of the American people is essentially the same as that of 1941-51, when the Wagner-Murray-Dingell bills called for "National Compulsory Health Insurance," except that it applies to a smaller segment at this time. The enactment of this legislation will permit the federal government to withdraw Social Security taxes on a compulsory basis

from almost the entire working population and use those taxes to reimburse hospitals and physicians for services rendered to all persons eligible to receive old age and survivors benefits. It is estimated that at present there are approximately twelve to thirteen million persons in these categories.

The American Medical Association has repeatedly opposed compulsory health insurance and is unequivocally opposed to this new version.

### **45,000,000 Under 40 Still Have Not Had Salk Vaccine**

New statistics produced by the National Health Survey indicate that 45,000,000 persons under 40 years of age still have not received Salk poliomyelitis vaccine. The new data, based on information obtained in household interviews, also shows the following: 5,000,000 under 40 received one injection, in contrast to earlier estimates of 17,000,000; 25,000,000 have received two shots, instead of the earlier estimate of 28,000,000; the number receiving the full three shots has increased from an estimated 28,000,000 to 34,000,000.

### **New U. S. Emphasis on Science To Affect Medical Programs**

With the U. S. just getting started on its "Big Push" to catch up with Russia's scientists, there is only fragmentary information in Washington as to how the medical profession and federal medical programs are to be affected by the major shift in emphasis. However, medicine will be involved in two aspects:

1. The increases in appropriations for scientific programs related to defense will result in, as President Eisenhower says, "cutting out or deferring entire categories of (not absolutely essential) activities. . . one of the hardest and most distasteful tasks that the coming session of Congress will face." Clearly federal medical programs "not absolutely essential" will be under close scrutiny.

2. The long-range drive to improve quality and quantity of scientific knowledge will be centered around defense-essential areas, particularly chemistry, physics and mathematics. However, if any broad

program of scholarships eventually is offered, medical studies won't be ignored.

The understanding is that the big new defense appropriations largely will flow through the Defense Department and such organizations as the National Science Foundation, but that medical research at the National Institutes of Health will not be allowed to suffer. Recommendations of the Bayne-Jones committee, now studying U. S. medical research programs, could be of major significance to NIH.

### **Supreme Court Taking Up FTC Cases on Health Insurance**

The question of whether Federal Trade Commission authority over accident and health insurance companies is limited to states that don't have adequate laws against false advertising will be coming up in the Supreme Court next year. The tribunal agreed on October 12 to review two circuit court decisions in this field. Because of the crowded court calendar, they probably won't come up for consideration until March or later.

FTC told the court that lack of federal regulation creates a legal vacuum, "a no-man's land which is not effectively regulated either by the states or the federal government." The litigation is an outcome of 41 complaints issued by FTC charging certain insurance companies with deceiving the public through false advertising of accident and health insurance policy terms and benefits. Citing a 1945 law, the circuit courts held in two cases that Congress intended the business of insurance should be regulated by the states, and that where states had undertaken such regulation the federal anti-trust laws and the FTC act would not be applicable.

### **Stepup in Basic Research Advocated by Science Foundation**

With the Soviet advances in space missiles as a backdrop, the National Science Foundation in a new report calls for a step-up in basic research in science, including medicine. Unlike some advocates of increased federal spending in this area, the NSF report urges that more money come from non-government sources and says that one of the ways to

encourage this is to change the internal revenue laws. Another suggestion: Reduction in the amount of development work financed by the federal government in universities and colleges, shifting the funds to aid basic research in all science departments.

### **Health Officers Back Hill-Burton Extension and Amendments**

State and territorial health officers winding up their annual conference with Health, Education, and Welfare Department officials on November 7 endorsed a 5-year extension of the Hill-Burton hospital program and urged the full \$210 million be appropriated for all phases. The group also proposed: (1) amendment of H-B to permit state health departments to receive grants for housing facilities, (2) allow nursing home units as part of homes for the aged which restrict admissions to residents of the homes to get H-B funds, and (3) permit transfer of funds from general hospital construction to special categories construction and vice versa.

### **Belt Tightening in Federal Grants Field Foreseen**

A top official of the Department of Health, Education, and Welfare has sounded a warning that may mean less federal spending in the health field, possibly after the current fiscal year. Under Secretary John Perkins chose as his forum the annual banquet of the Association of State and Territorial Health Officers. They meet annually with HEW officials to map plans for the next year and hear reports from government leaders. This is what Mr. Perkins, in part, had to say:

"... there are now other circumstances that suggest an objective reevaluation of the grant system. Think of the dramatic change in the national budget that has been brought about by war and cold war . . . Federal grants-in-aid have proven to be an effective means . . . for smoothing out, at least on a minimum basis, the variations in wealth among the states. However, I am suggesting that the realities of today's world and its demands on the federal budget re-



quire that the states and local communities assume an increasingly greater part of both the burden and the challenge presented by the public health needs of the future."

### Consultants Named to Advise On Research Done by NIH

The National Institutes of Health, which always have had councils to advise them on grants for non-federal research projects, soon will have additional groups to advise them on work done in the institutes themselves and by NIH staff people in the field. The new six-man groups, to be known as boards of scientific counselors, will be composed of leading scientists from outside the federal government. Each of the seven institutes will have a board, as will the NIH division of biologics standards, which conducts research as part of its responsibility for maintaining safety, purity and potency of biologic products.

Four of the boards already have been named, and others will be announced later. Formed so far are the following:

**National Heart Institute**—Drs. Robert F. Loeb, (chairman), Columbia University; Alfred Blalock, Johns Hopkins Hospital; Julius H. Comroe, Pennsylvania Graduate School of Medicine; Paul C. Zamecnik, Massachusetts General Hospital; Maurice H. Seevers, University of Michigan; H. E. Carter, (Ph. D.), University of Illinois.

**Institute of Arthritis and Metabolic Diseases**—Drs. Cecil Watson (chairman), Minnesota School of Medicine; Edwin Bennett Astwood, New England Center Hospital, Boston; Samuel Gurin, (Ph. D.), Pennsylvania School of Medicine; W. C. Stadie, University of Pennsylvania; Oskar P. Wintersteiner, (Ph.D.), Squibb Institute of Medicine Research, New Brunswick, N. J.; William J. Darby, Vanderbilt School of Medicine.

**Institute of Dental Research**—T. J. Hill, D.D.S., (chairman), Western Reserve, J. L. T. Appleton, D.D.S., University of Pennsylvania; W. D. Armstrong, MD., University of Minnesota; R. F. Sognnaes, D.M.D., Harvard School of Dental Medicine; F. D. Ostrander, D.D.S., Mich-

igan School of Dentistry; A. G. Brodie, D.D.S., College of Dentistry, University of Illinois.

**Division of Biologics Standards**—Drs. Johannes Ipsen, Jr., (chairman), State Department of Public Health, Massachusetts; Robert Pennell (Ph. D.), Protein Foundation, Inc., Cambridge, Mass.; Theodore E. Woodward, University of Maryland Hospital, Baltimore; David Bodian, Johns Hopkins; Philip Sartwell, Johns Hopkins; Dennis W. Watson, (Ph. D.), University of Minnesota.

### Welfare Costs Increasing at Same Rates as U. S. Production

Social Security Administration, completing a survey for the fiscal year ending June 30, 1956, reports that spending by public agencies—U. S. state and local—for social activities is increasing at the same rate as the total national output of goods and services. That is the most recent year for which state and local figures are available. In fiscal year 1954-55 this type of welfare spending totaled \$32.2 billion, and in fiscal 1955-56 it was \$34.5 billion. However, the higher level of spending remained at 8.6 per cent of the gross national product, the same proportion as for the year before. Of the \$34.5 billion, \$19.9 billion was state and local money, \$14.6 billion U. S. money.

### Doctors Allege Atrocities in Cuba

The Secretary General of The World Medical Association announced today that on Thursday, November 7, 1957 he had mailed a letter to the President of the Republic of Cuba requesting authority for a committee of representatives of The World Medical Association to visit Cuba to carry out an official investigation of the allegations received by it that the doctors of Cuba are being persecuted and murdered while carrying out their humanitarian service to the sick and wounded.

In commenting upon the content of the letter to President Batista, Dr. Louis H. Bauer revealed these excerpts:

### THE ALLEGATIONS

"On October 24, a doctor was asked to attend an insurgent who had been wounded in the spine. The doctor called a taxicab to rush the patient to a hospital. On

the way there an army patrol stopped the taxi, and removed the patient, the doctor and the taxi driver and killed them. The doctor's skull was crushed by a rifle butt and several shots fired into his body.

"On October 26, a doctor was dragged from his home, beaten to death and his body left at a morgue as 'unidentified.'

"Embassies are offering asylum to persecuted, ill-treated and tortured physicians, whose only crime is that they have rendered medical aid to persons opposed to the government."

## Dr. DeBakey Appointed To National Advisory Heart Council

Appointment to the National Advisory Heart Council of Dr. Michael E. DeBakey, Chairman of the Department of Surgery, Baylor University College of Medicine, was announced today by the Surgeon General, Leroy E. Burney of the Public Health Service, U. S. Department of Health, Education, and Welfare.

Dr. DeBakey, since 1948 the Judson L. Taylor professor of surgery at the University, is also surgeon-in-chief at the Jefferson Davis Hospital, and the Methodist Hospital, Houston. He is an associate editor of the **American Surgeon** and a co-editor of the **American Lectures in Surgery**.

## Education Council For Foreign Medical Graduates

After nearly three years of planning, the Educational Council for Foreign Medical Graduates has placed an "open for business" sign on the door of its offices in suburban Evanston.

The council, which will carry out a detailed and comprehensive program for evaluating foreign medical school graduates, has offices in the Orrington Hotel in Evanston. The executive director is Dr. Dean F. Smiley, Chicago, former secretary of the Association of American Medical Colleges.

It was decided three years ago that some form of evaluation service should be established within an independent agency whose affairs would be directed by a board of trustees designated by four cooperating organizations, the American Medical Association, the Association of Amer-

ican Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards of the United States. For the next two years, the council will be supported by the four sponsoring agencies, the Kellogg Foundation and the Rockefeller Foundation.

The council, incorporated in the State of Illinois, will be administered by a 10-member board of trustees—two representatives from each of the four sponsoring agencies and two persons representing the public at large, one named by the U. S. Department of Defense and the other by the U. S. Department of Health, Education and Welfare.

The president of the board is Dr. J. Murray Kinsman, dean of the University of Louisville School of Medicine.

Dr. Smiley said the council will distribute to foreign medical graduates around the world authentic information regarding the opportunities and difficulties involved in coming to the United States on an exchange student visa in order to take training as an intern or resident in a U. S. hospital, or coming on an immigrant visa with the hope of becoming licensed to practice.

## The Month in Washington

**Washington, D. C.**—Just how much money does the federal government spend on health programs and just how is it spent?

For all health and medical purposes, the U. S. during the current fiscal year is spending approximately two and one-half billion dollars. This—despite months of economy talk in the administration and in Congress earlier in the year—is about the same figure as last year.

At least 23 U. S. cabinet departments and independent agencies are engaged in some medical operations, and there are at least 79 separate health-medical activities worthy of listing and describing. Many of these in turn are responsible for scores and scores of individual operations.

This year the relatively new Department of Health, Education and Welfare tops the list of all departments in health-medical spending with \$849,394,800, bounding past Veterans Administration



and Defense Department, which up to now have been at the head of the column. VA is spending \$849,374,000, within \$20,000 of HEW, but Defense Department this year drops back more than \$80 million, to \$702,000,000, largely because the decreasing size of the armed forces means fewer uniformed men and dependents to care for.

### **Civil Service Commission Pushes For Health Insurance Plan**

In an effort to disseminate information fully and gain widespread support among U. S. workers before next session of Congress, the Civil Service Commission is issuing a series of fact sheets explaining the commission-sponsored program of health insurance for federal civilian employees. The particular plan was the basis of a bill introduced last session but not acted upon. Other ideas were proposed in prior sessions, but there has been no action on any of them. Under the program now sponsored by CSC, the participating employee would have to take both basic and catastrophic insurance, with the U. S. paying a third of the cost. Basic insurance could be that provided by employee's unions or associations, fraternal groups or Blue Cross-Blue Shield, but it would have to meet some standards set by CSC.

### **New Tax ruling on Medical Groups**

A new ruling by the Internal Revenue Service may mean that doctors practicing as an association are entitled to the same tax deferment privileges as corporation employees regarding annuities. In the now famous Kintner case, a federal court of appeals ruled that a group of doctors, formerly associated as partners, would be entitled to tax treatment as a corporation after they banded together in an association. Until now, however, the IRS has held that it would not follow the Kintner decision, but would consider a similar association as a partnership, and partners can't be employees under a pension plan. Now IRS is reversing itself; it will not deny the favored tax status to an association of doctors simply because indications are the association was formed to obtain pension plan benefits for members of the association.

If IRS maintains this policy, the effect will be to allow doctors forming an association (in line with IRS criteria yet to be established) to enjoy approximately the same annuity advantages they would under the Jenkins-Keogh and similar bills now pending in Congress. The sponsors would have to meet two tests: the association would have to qualify for the federal tax benefits, while at the same time avoiding the charge, under state law, of engaging in the corporate practice of medicine.

### **Wintertime Fun**

How to live sensibly and still have a good time in cold weather is the way of life outlined in a new series of radio transcriptions the AMA's Bureau of Health Education will have available for use by medical societies early in December.

### **PHS Committee Opposes Mass Vaccinations With BCG**

After studying the advantages and disadvantages of BCG vaccine to control tuberculosis, a special Public Health Service Committee recommends against mass vaccination campaigns, proposing instead that vaccinations be limited to special situations where exposure to the disease is unusually high and where other means of control are inadequate. The committee concluded that vaccinations should be limited to:

1. Physicians and other medical personnel working in hospitals with inadequate tuberculosis control programs.
2. Families with whom a member infected with tuberculosis must reside.
3. Those associated with institutions in which exposure is known to be high, such as certain mental hospitals and prisons. The committee gave weight to arguments that because persons vaccinated with BCG have a permanent positive reaction to testing, testing and case finding surveys are made difficult. It also pointed out that vaccination campaigns would occupy the time of persons trained in TB control work, who, in the commit-

tee's opinion, could be more profitably employed in other directions.

### **Eisenhower Asks More Private Financial Aid to Medical Colleges**

President Eisenhower, in a major address October 22 to the National Fund for Medical Education, issued a call for business and community leaders, along with the general public, to help medical schools pay their bills. The President did not mention the administration's pending bill for federal construction aid to medical schools, although there is no indication it will not be pushed in the next session of Congress.

Implicit in Mr. Eisenhower's New York address is the need for increased voluntary efforts before turning to the federal government. "For government to take over all responsibility in this critical field would signal the onset of a grave inflection of our nation's spirit," the President told his audience of corporation executives, medical school educators and others interested in health matters.

The occasion was the awarding to Alfred P. Sloan, Jr., retired industrialist and president of the Alfred P. Sloan Foundation, of the Frank H. Lahey Memorial Award for lay contribution to medical education. The presentation was made jointly by former President Herbert Hoover; Dr. David B. Allman, president of the American Medical Association and Dr. John B. Youmans, president of the Association of American Medical Colleges.

### **AEC Medical Committee Says Weapons Tests Should Continue**

A 6-man Advisory Committee on Biology and Medicine has informed the Atomic Energy Commission that necessary tests of thermonuclear weapons are justified despite radiation hazards. The group thus sides with the AEC in a debate that has been the subject of lengthy congressional hearings and is expected to continue in the next session. Comments the group: "... if we wish to maintain a first class military organization for the safety of the country, we must at least keep abreast of new weapons development. . ."

The committee concedes, however, that tests must be kept within reasonable bounds, particularly when more nations decide to conduct their own tests. "In time the situation may well become serious . . . The question arises in the minds of many thoughtful persons whether the number and power of bombs exploded in tests are being kept at the minimum consistent with scientific and military requirements."

The committee made some estimate of maximum damage to be expected from the annual detonation of atomic explosives equal to the average of all tests held in the last five years. They included: leukemia, an increase of 160 deaths and possibly another 36 deaths over current rate of 11,400; birth of handicapped children, an increase of from 160 to 800 above the present rate of 80,000 a year in the U. S.; shortening of life, a few days at the worst; bone cancer, possibly no effects at all in a lifetime.

### **AMA Plans Industrial Health Congress in Milwaukee**

Maintaining high standards of health in industry will be a principal topic of consideration at the 18th annual Congress on Industrial Health to be held January 27-29 at the Schroeder Hotel in Milwaukee. Physicians, nurses, industrial hygienists, engineers and others interested in the field will attend the meeting sponsored by the AMA's Council on Industrial Health.

### **AMA Plans Two "Nomenclature" Institutes in '58**

So popular have the Nomenclature Institutes been that the American Medical Association again plans to sponsor two more of these short courses during 1958. The first will be conducted March 31 to April 2 at Tulsa, Oklahoma. The second will be held in July in Boston. These three-day meetings are planned by the AMA as a special service to medical record librarians and others working with the **Standard Nomenclature of Diseases and Operations** in the hospital, clinic or doctor's office. Lectures are given by Edward T. Thompson, M. D., Nomencla-



ture editor, and chief, intermural research activities, division of hospital facilities, USPHS, Washington, D. C., and Adaline C. Hayden, C. R. L., Nomenclature associate editor. Queries should be sent to AMA.

### **Committee Appointed to Advise On National Health Survey**

A committee of 24 members has been appointed to advise Public Health Service on operations of the National Health Survey, which will start releasing some of its findings next year. The survey, a continuing one, was established by Congress in 1956. Surgeon General Burney said the committee will review plans and progress of the survey and assist in arranging for cooperation with private and public organizations.

### **Active TB Declines 30 Percent In Five Years, but Still 250,000 Cases**

Although active tuberculosis has declined 30 percent in the last five years, the general control picture is not entirely reassuring. This is the report of Public Health Service and the National Tuberculosis Association on results of the only nationwide survey in five years. The check shows that despite intensive efforts for control, almost 40 percent of the active cases are unknown to health authorities, and these people are not receiving treatment. ("Unknown" cases are estimated on the basis of X-ray survey findings.) Other findings — In the five years there has been no decrease in number of persons who are or have been ill with the disease, and there are still about 250,000 persons known to have tuberculosis in its active form. The most encouraging phase of the report is that active cases have dropped from 350,000 to 250,000 and inactive cases requiring supervision of health departments from 600,000 to 550,000.

### **Hearing on Alcoholism and Safe Driving Proposed for Next Session**

The House Traffic Safety subcommittee may stage hearings in the next session of Congress on relationship of alcohol to safe driving. Rep. Kenneth Roberts (D., Ala.), heads the House Inter-

state subcommittee which has held extensive hearings on other aspects of auto safety. He told of plans at the annual meeting of the Medical Society of Virginia held in Washington. Mr. Roberts said the subcommittee will utilize research by the medical profession on the alcohol level in the blood and its correlating effect upon behavior and driving ability.

Mr. Roberts said he also hoped the next session would pass his bills for (1) federal funds to help the states set up driver education courses and (2) the establishment of Bureau of Standards specifications on auto safety belts shipped in interstate commerce. He forecast that Congress will continue the life of the subcommittee "until greater highway safety does become a reality."

### **Restraint Urged in Use of X-Rays With Newborn, Pregnant Women**

A group of specialists in health fields, after a day's discussion of the advantages and problems in use of diagnostic X-rays in care of pregnant women and children, came up with an appeal for restraint. The session was called by the Children's Bureau, with Bureau Chief Katherine Brownell Oettinger presiding. In attendance were radiologists, pediatricians, obstetricians, dentists and public health workers. They agreed that, used under proper conditions, X-rays were invaluable, and they noted a general interest in the medical profession in promoting more knowledge and better observation of precautions in use of X-rays. It was emphasized that too many parents demand X-rays, in the mistaken belief they are essential to an examination, and that parents best contribution would be to refrain from pressing for X-rays when the physician or dentist did not recommend them.

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## **ANNOUNCEMENTS**

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### **Postgraduate Course, Gastroenterology**

Gastroenterology, a two-day Postgraduate Course, has been announced for January 15 and 16, to be presented at

the University of Kansas Medical Center, Kansas City, Kansas.

Patient material of representative problems is presented and constitutes an important part of the program. The informal symposium and panel method of teaching is utilized. The panels include surgeons as well as internists for comprehensive coverage of selected gastrointestinal problems.

Further information concerning details of the course, fee, registration, etc., may be obtained by writing the Department of Postgraduate Medicine, University of Kansas School of Medicine, Kansas City 12, Kansas.

### **American Board of Obstetrics And Gynecology**

The next scheduled examinations (Part II), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from May 7 through 17, 1958.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible.

### **Pulmonary Disease Clinic**

Clinical facilities of two major hospitals will be used in the presentation of the Pulmonary Disease Clinic in Kansas City, on January 13 and 14. The Monday program is offered at the University of Kansas Medical Center, and the Tuesday sessions are scheduled at the Kansas City Veterans Administration Hospital.

The guest faculty includes: Dr. Kenneth T. Bird, Harvard Medical School; Dr. Edward A. Gaensler, Harvard Medical School; and Dr. Gardner Middlebrook, University of Colorado.

Registration fee for the course is \$30.00. Address inquiries concerning the program, registration, etc., to the Department of Postgraduate Medicine, University of Kansas School of Medicine, Kansas City 12, Kansas.

### **Academy of General Practice Meets Next March in Dallas**

**Kansas City, Mo.**—The American Academy of General Practice Tenth Annual Scientific Assembly will give more

than 8,000 family doctors, residents, interns and guests an opportunity to hear 35 medical experts discuss subjects ranging from teen-age problems to old-age problems and from heart disease and ulcers to eye ailments, fractures and the hypnotized patient. The four-day Assembly opens March 24 in the new Dallas Memorial Auditorium.

### **Postgraduate Course in Surgery**

The University of Kansas School of Medicine, will present its thirteenth annual Postgraduate Course in SURGERY, on January 20, 21, 22 and 23, 1958, at the University of Kansas Medical Center. The program is designed to interest not only the general surgeon and the surgical specialist, but also the general practitioner who includes surgery in his practice. General considerations in the program include Treatment of Accidentally Incurred Injuries, Changing Concepts of Surgical Treatment, Surgical Management of Cancer, and Gastrointestinal Bleeding.

An outstanding sixteen-member guest faculty will participate in the didactic, panel and live clinic sessions.

The registration fee is \$60.00. Further information regarding the program, registration, etc., may be obtained by writing the Department of Postgraduate Medicine, University of Kansas School of Medicine, Kansas City 12, Kansas.

## **Obituary**

**Dr. Frederick Homer Jones** of Piggott, died Wednesday, October 9, 1957, at the age of 67. Dr. Jones was born in Little Springs, Mississippi. He attended Mississippi College at Clinton, Miss., Memphis Hospital Medical School and the University of Tennessee Medical School. He went to Piggott in 1913 and had practiced medicine there since that time. Dr. Jones was a member of Clay County, Arkansas and Southern Medical Societies and a Fellow of the American Medical Association. He had served as Vice-President of the Mid-South Medical So-



ciety, as County and District Society President, and as Councillor for his district. He was a 32nd Degree Mason, and had been a Deacon for more than 25 years in the First Baptist Church of Piggott. Survivors include his wife, Mrs. Gladys Vancil Jones; one son, Dr. John H. Jones of Davis, Calif.; three sisters and two grandchildren.

**Dr. R. E. McLochlin**, Little Rock, died November 8, 1957, at the age of 53. The physician was born near Logansport, Ind. He received his master's degree in physiological chemistry from the University of Chicago and then enrolled in 1929 at the University of Arkansas School of Medicine while continuing as full time chemistry professor at Little Rock College. Then he became an associate professor of chemistry at the School of Medicine while he was still a student there. He received his MD degree in 1933. Dr. McLochlin was an associate member of the American College of Physicians, a staff member of St. Vincent's and Arkansas Baptist Hospital, and a member of the Pulaski County and Arkansas Medical Societies and the American Medical Association. Survivors include his widow, Mrs. Jeff Walther McLochlin, a son, James Patrick, Little Rock; four brothers and four sisters. Dr. McLochlin was a member of the Holy Souls Catholic Church, 4th degree Knights of Columbus and Catholic Knights of America.

**Dr. James Isaac Scarborough**, aged 77, a Little Rock physician and surgeon who retired about 10 years ago, died Tuesday, October 29, 1957, at his home. He was a graduate of Princeton University and received his medical degree from Johns Hopkins University in 1908. Dr. Scarborough was on the staff of the Mayo Clinic two years and was for some time assistant to Dr. Will J. Mayo one of the brothers who founded the Mayo Foundation at Rochester, N. Y. Dr. Scarborough had a fellowship in surgery at the Clinic and was a president of the Resident and Non-resident Physicians of the Clinic. He was a member of the Pulaski County Medical Society, Arkansas State Medical Society, American Medical Association, American College of Surgeons

and the Southern Surgical Association. Survivors include his wife, Mrs. Mary Carter Scarborough, and a son, James C. Scarborough of Long Beach, Cal.

**Dr. Havis T. Capel**, 48, well known Pine Bluff physician and surgeon, died unexpectedly Saturday, October 26, 1957. Dr. Capel graduated from the University of Arkansas Medical School in 1933. He was associated with his late father in the operation of the Capel and Capel Clinic in Pine Bluff, and since his father's death in 1954, had operated the clinic alone. A veteran of World War II, he served as a major in the U. S. Army Medical Corps. He was a member of the Lakeside Methodist Church. Dr. Capel was a member of the staff of the Davis hospital, the Jefferson County Medical Society, the Arkansas Medical Society and was also a member of the Pine Bluff Lodge No. 69, F. and A. Masons, and the Sahara Shrine Temple. Survivors include his wife, Mrs. Frances Barker Capel; a daughter, Miss Lynn Capel, a son, John C. Capel, his mother, one sister and one brother, all of Pine Bluff.

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## PERSONALS AND NEWS ITEMS

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**Dr. L. A. Kelly** who has been practicing for the past year or so in Cotton Plant has moved to Yellville, Ark.

Recently appointed Clinical Professor of Medicine at the University of Arkansas School of Medicine is **Dr. R. B. Robins** of Camden.

At the semi-annual meeting of the Arkansas State Medical Board in November, **Dr. William A. Snodgrass, Jr.**, of Little Rock was elected vice president to replace **Dr. M. L. Harris** of Newport, who died in the fall. **Dr. Hugh Edwards** of Searcy was named to fill the vacancy on the Board.

**Dr. James W. Headstream** and **Dr. B. W. Jones**, Little Rock, presented a paper entitled "Vesico-Ureteral Reflux in Children" at the annual meeting of the South

## FEATURES

Central Section of the American Urological Association in Oklahoma City, October, 1957. They also presented an exhibit entitled "Adrenal Tumors" which received a Certificate of Merit from the Association.

The meeting of the American Otorhinologic Society for Plastic Surgery held in Chicago October 13th was attended by Drs. Paul Mahoney, H. A. Bailey, Raymond Cook, Dale Alford, W. J. Schwarz, all of Little Rock, Drs. C. D. Cyphers and G. H. Landers of El Dorado, and Dr. R. E. Glasscock of Pine Bluff.

Dr. Mahoney is president-elect of the organization.

Dr. F. Douglas Lawrason, provost of the University Medical Center was one of 100 invited guests who attended a special dinner honoring Alfred P. Sloan, Jr., October 22, 1957, in the Waldorf Astoria Hotel, New York. Mr. Sloan, business leader and philanthropist, who helped establish the Sloan-Kettering Institute for cancer research, was being honored by the National Fund for Medical Education. Other guests included former Pres. Herbert Hoover, Gen. Lucius Clay, Henry Ford II, and former Harvard Pres. James B. Conant. Dr. Lawrason went to New York for the dinner from Atlantic City, N. J., where he was attending the annual meeting of the Association of American Medical Colleges.

A Rogers physician, Dr. James L. Pickens, has been elected to active fellowship in the American Academy of Ophthalmology and Otolaryngology.

At the annual meeting of the South Central Section of the American Urological Association in Oklahoma City recently, Dr. Sam Jameson of El Dorado presented a paper entitled "Surgical Repair of Hydronephrosis by Resection of Ureteropelvic Junction with Anastomosis of Ureter to Pelvis".

Dr. Fred Gordy of Conway has been notified of his acceptance as a senior member of the American Society of Anesthesiology.

A recent speaker of the North Little Rock Kiwanis Club was Dr. Eva Dodge,

associated professor of obstetrics and gynecology of the University of Arkansas Medical School.

At the annual meeting of the Southern Psychiatric Association held in Miami Beach, Fla., recently, Dr. Ewin S. Chappell, director of professional education at the North Little Rock VA Hospital, was elected secretary-treasurer.

Dr. James H. Growdon, professor of surgery and department head at the University of Arkansas School of Medicine, received a plaque at the Clinical Congress of the American College of Surgeons which was held at Atlantic City, N. J., for his work on a surgical film. The picture was titled the "Repair of Esophageal Hiatal Hernia using the Abdominal Approach."

The 10th annual clinical assembly of the Arkansas chapter of the American Academy of General Practice was held in the Hotel Marion, Little Rock, October 16-17. During the two-day assembly, the doctors heard lectures by outstanding men from various clinical groups throughout the nation. These speakers included: Dr. Malcolm E. Phelps, El Reno, Okla., president of the American Academy of General Practice; Ray W. Gifford, Jr., Mayo Clinic, Rochester, Minn.; Chester A. Swinyard, Salt Lake City, Utah; Henry Claggett, Jr., Wilmington, Del.; George E. Burch, New Orleans, La., and others. Newly elected officers are Dr. C. C. Long, Ozark, president; Dr. H. W. Thomas, Dermott, president-elect; and Dr. L. A. Whittaker, Fort Smith, secretary-treasurer. Dr. W. A. Snodgrass, Jr., of Little Rock, is the outgoing president.

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## *Proceedings of Societies*

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The First Councilor District Medical Society held its 110th Semi-Annual Meeting on Thursday, October 24th, at 2:00 p. m. in Paragould. The program, presided over by Dr. A. H. Maddox, consisted of the following:

Seminar on Gynecology—A talk "The



Trap" on a new problem in diagnostic gynecology by Dr. Henry Turner of the University of Tennessee;

A discussion on "Outlet Pathology" by Dr. Deane Wallace of the University of Arkansas Medical Center and a talk on the "Course of the Menopause" by Dr. Richard Paddock of Barnes Hospital in St. Louis.

Question and answer periods and panel discussions followed. A business session with the election of officers was held, followed by a social hour and dinner at the Kingsway Club.

Members of the Pulaski County Medical Society heard a discussion of the "Doctor's Dollar" by a Little Rock banker in their regular meeting in November. Mr. J. H. Bowen, vice president of the Union National Bank, spoke on the economic problems of the physician and investments as a protection against "income pitfalls." The discussion was preceded by a supper.

The Fourth Councilor District Medical Society met at the Country Club at Monticello Monday evening, October 21, 1957. About forty physicians and their wives attended. Guest speakers were Dr. Jack Riggin and Mr. Nelson Evans. Dr. Riggin spoke on "Training for General Practice at the Medical Center" and Mr. Evans on "Policies and Practices at the Medical Center." Other guests were Dr. T. D. Brown, President of the Arkansas Medical Society, and Mrs. W. F. Norrell, wife of Congressman Norrell, who spoke to the ladies on "Social Life in Washington, D. C."

At the meeting of the Craighead-Poinsett Medical Society Wednesday evening, November 6th, which was held in the Jonesboro Country Club, the following program was presented: "Management of Acute Head Injuries" by Dr. B. Patrick of Memphis; and "Management of Acute Chest Injuries," by Dr. Gwin Robins also of Memphis. Arrangements were also made to have their annual barbecue.

The Ouachita County Medical Society met in regular dinner session at the Camden Hotel Thursday evening, November

7, 1957. Dr. David M. Gould, head of the Department of Radiology, University of Arkansas School of Medicine spoke on "Interpretation of a Chest X-ray."

Dr. John W. Sneed of Conway was elected president of the Second District of the Arkansas Medical Society at an October meeting held in Searcy. He succeeded Dr. W. L. Davis of Searcy. Dr. Joel Monfort of Batesville was elected vice president and Dr. Charles Archer of Conway is secretary-treasurer.

Contributors to the  
American Medical Education Foundation  
October, 1957

E. M. Gray, Mountain Home .....	\$ 50.00
A. D. Hall, Little Rock .....	10.00
Fount Richardson, Fayetteville .....	100.00
	<hr/>
	\$160.00

## PRELIMINARY PROGRAM 82nd ANNUAL SESSION Arkansas Medical Society

The 1958 Annual Session of the Arkansas Medical Society will be held in the Arlington Hotel, Hot Springs, on May 5th, 6th, and 7th. Several innovations will mark the meeting.

On Monday night, in a departure from established custom, the State Society will sponsor a Dutch Treat Buffet Dinner and Party at the Majestic Lodge on Lake Hamilton. The Committee and the Council felt that our annual conventions have become too big to continue to allow the host county society to underwrite the Monday evening entertainment. By making the party a "Dutch Treat" affair, there will be no necessity for increasing the registration fee. Tickets will be sold to those wishing to attend. The local arrangements committee promises a good time for all members, wives and guests participating. Those who were present at this party in 1955 will recall the popularity of the boat rides and swimming and fishing arranged by Garland County physicians.

Specialty sections are being asked to confine their meetings to Tuesday afternoon, May 6th, when no general session is scheduled. It is felt that attendance at both the section meetings and the gener-

## FEATURES

al sessions will be improved by eliminating competition between them.

The Annual Banquet will be held Tuesday night, May 6th, in the Arlington Dining Room. Entertainment will be furnished by a choral group, supplemented by dinner music by the hotel orchestra. Mr. Chester Lauck of "Lum and Abner" fame, now Executive Assistant, Continental Oil Company, will be Master of Ceremonies. After the entertainment, the incoming president, Dr. Louis Hundley of Pine Bluff, will be presented and installed as President of the Arkansas Medical Society for the 1958-1959 year.

Due to the fact that the hotel has carpeted the dining room, it will be necessary to hold the dance following the banquet in another location. The local arrangements committee will have information on this at a later date.

The Wednesday morning scientific program will be limited to two outstanding speakers who will speak on two aspects of the same disease. The speakers will conduct a clinical pathological conference at the end of the program.

In order to stimulate attendance at the Wednesday morning general session, a prize will be given to the Auxiliary from the Councilor District having the largest number of doctors present. The councilor district in which Hot Springs is located will necessarily be excluded from competition.

The program, in its preliminary form, is as follows:

### Monday, May 5th

9:00-9:10 a. m.: Call to order, invocation

9:10-9:30 a. m.: President's Address, Dr. T. Duel Brown, Little Rock

9:35-9:55 a. m.: "The Prenatal Care, Delivery, and Postnatal Care of the RH Negative Patient", Dr. Jack Pritchard, University of Texas, Dallas, Texas

10:00-10:20 a. m.: "Erythroblastosis Fetalis"

10:20-10:35 a. m.: Questions and Answers

10:35-11:00 a. m.: Visit Exhibits

11:00-11:20 a. m.: "Advances in the Surgery of Congenital Heart Disease", Dr.

Dwight C. McGoon, Mayo Clinic, Rochester, Minnesota

11:25-11:45 a. m.: Scientific address

11:45-12:00 a. m.: Questions and Answers

12:00-1:00 p. m.: Lunch

1:00-1:30 p. m.: Scientific movies

1:35-1:55 p. m.: "Hematuria", Dr. Horace V. Munger, Lincoln, Nebraska

2:00-2:20 p. m.: Scientific Address, Dr. Leroy Burney, Surgeon General, The Public Health Service, Washington, D. C.

2:20-2:30 p. m.: Questions and Answers

2:30-3:00 p. m.: Visit exhibits

3:00-3:20 p. m.: "Injuries of the Hand," Dr. Hugh Smith, Campbell Clinic, Memphis, Tennessee

3:25-3:45 p. m.: Scientific address, Dr. Robert Watson, Little Rock

3:45-3:55 p. m.: Questions and Answers

4:00 p. m.: First Session of the House of Delegates

6:30 p. m.: Buffet Dinner and Party (Dutch Treat); Majestic Hotel Lodge, Lake Hamilton

### Tuesday, May 6th

9:00-9:05 a. m.: Call to order, invocation

9:05-9:25 a. m.: "The Diagnosis of Gynecological Tumors," Dr. Felix Rutledge, Associate Professor of Gynecology, University of Texas, Touston, Texas

9:30-9:50 a. m.: "The Treatment of Painful Terminal Illness," Dr. Milton H. Erickson, Phoenix, Arizona

9:50-10:00 a. m.: Questions and Answers

10:00-10:30 a. m.: Visit Exhibits

10:30-10:50 a. m.: Scientific address

10:50-11:00 a. m.: Questions and Answers

11:00-12:20 a.m.: Visit Exhibits

11:30-12:00 noon: Memorial Service

12:00-1:00 p. m.: Lunch

2:00-5:00 p. m.: Specialty Sectional Meetings

7:00 p. m.: Banquet—Inauguration of President—Choral Music—Dancing

### Wednesday, May 7th

9:00-9:05 a.m.: Call to order, invocation

9:05-9:25 a. m.: "The Pathology of



Chronic Ulcerative Colitis," Dr. Malcolm B. Dockerty, Mayo Clinic, Rochester, Minn.

9:30-9:50 a. m.: "Problems in the Management of Ulcerative Colitis," Dr. J. A. Bargaen, Mayo Clinic, Rochester, Minn.

9:50-10:00 a. m.: Questions and Answers

10:00-10:30 a. m.: Visit Exhibits

10:30-11:45 a. m.: Clinical Pathological Conference—Dr. J. A. Bargaen, Mayo Clinic, Rochester, Dr. Malcolm Dockerty, Mayo Clinic, Rochester, Minnesota

11:45-12:00 noon: Visit Exhibits

12:00-1:00 p. m.: Lunch

2:00 p. m.: Final Session of House of Delegates

## Woman's Auxiliary

The Women's Auxiliary to the Garland County Medical Society met Monday afternoon, October 21, at the home of Mrs. Jett Scott with Mrs. William A. Goodrum, Mrs. Walter Klugh, Sr., and Mrs. T. N. Black as co-hostesses. Municipal Judge M. C. Lewis, Jr., spoke on "Traffic Safety." The membership voted to sponsor the National essay contest of the Association of American Physicians and Surgeons in all the high schools in Garland county this year. It was announced that Mrs. H. King Wade, Sr., will serve on the advisory board of the Practical Nurses school for 1957-58. Approximately 40 were in attendance.

Mrs. Austin Doren of Smackover, president of the Auxiliary to the Union County Medical Society, presided at a November luncheon meeting of the organization in the Ming Room of the Rufus Garrett Hotel in El Dorado. Following routine business, Mrs. Charles Murphy, Jr., presented a film from the Union County Cancer Association. Hostesses for the occasion were Mrs. W. S. Rainwater, Mrs. George Burton and Mrs. C. E. Tommey.

The Boone County Medical Auxiliary were hostesses to a meeting and a luncheon at Springlake, near Harrison, in November. Mrs. Ida Kennedy of Arkadelphia, state medical auxiliary president,

gave the president's message and reviewed the program for this year's work. Mrs. Willie Oates of Little Rock, first vice president, assisted with the program. Mrs. Bill Barron is president of the Boone County Medical Auxiliary.

## BOOK REVIEWS

**Dorland's Illustrated Medical Dictionary:** Editorial Board, Lesb  Brainerd Arey, Ph.D., William Burrows, Ph.D., J. P. Greenhill, M.D., Richard M. Hewitt, M.D.; 23rd Edition; Illustrated. 1957, \$12.50, W. B. Saunders Co., Philadelphia.

For the first time in its 57 years, this time-honored work has been published without the personal blessing of Dr. Dorland and his close associate, Dr. E. C. L. Miller of Richmond, Va. Both of these esteemed and venerable gentlemen have died in the past two years.

The general context of this twenty-third edition is based on that of its forebearers. Some of the names of physicians important only from a historical standpoint have been omitted. A new section on "modern drugs and dosage" has been prepared by Austin Smith, M.D. Herein are given names, synonyms, trade names, etc., of many new drugs now available. The identification of the many names of the same drug is easily accomplished from this new section. Dosage is included. For this reason, the dosage has been omitted in the alphabetical description of the drug itself. This has been a space-saver in a text which has necessarily added many new terms with each edition.

The book is therefore slightly larger than any previous edition and carefully edited by a group of scholars. Dorland's Dictionary is quite as indispensable as the microscope in any physician's office.—F. R.

### Modern Perinatal Care.

This book by Dr. Leslie V. Dill is an excellent review of the current concepts of the care and complications of the pregnant woman.

The 21 chapters include nutrition, hygiene, pelvic menstruation, toxemias, medical complications, and the management, infant feeding, and fetal accidents.

The introductory chapter regarding the evolution of obstetrics presents a "thumb-nail" review of the history of obstetrics and the last two chapters deal with obstetrics and the law, and the ethics of the Catholic Church as they pertain to obstetrics, which should be informative to both physicians and laymen alike. These three chapters are perhaps the most significant and important parts of the entire book.

All in all, this is a book that is recommended to all those doing obstetrics either as a specialty or part-time.—Alex Tharp Gillespie, M.D.

# TUBERCULOSIS ABSTRACTS

Sponsored by  
The Arkansas Tuberculosis Association

Issued by U. S. Department of Health, Education, and Welfare, Public Health Service, October 21, 1957.

A committee invited by Surgeon General Leroy E. Burney, to examine the Public Health Service policy and program in the field of BCG vaccination, met in Washington, June 14, 1957. The committee was asked to formulate a new statement and make new recommendations, if it seemed appropriate, on the use of BCG vaccination as a public health procedure, and on further research as to its value.

A previous advisory committee had considered the question of BCG vaccination, and a statement on the use of BCG, consistent with its recommendations was issued by the Public Health Service in August, 1950. The Public Health Service then stated that mass BCG vaccination programs were not indicated in this country, and that vaccination should be limited to persons with unusually great exposure to tuberculous infection.

It appeared to the present committee that a logical evaluation of BCG vaccination and the formulation of recommendations on the policy of the U. S. Public Health Service, could be made only after broad consideration of the present status of the tuberculosis problem; facts on BCG vaccination that have become available since the last statement; the contribution to be expected from BCG in diminishing the problem; and the advantages and disadvantages of various public health applications of BCG.

*Present Status of Tuberculosis Problem.* Nearly all aspects of the tuberculosis problem have undergone great changes during the past decade. The mortality rate has decreased from about 30 per 100,000 in 1946, to less than 10 in 1956. The morbidity rate and the risk of infection have also declined, but not so rapidly. The consequences of tuberculosis morbidity have been lessened by anti-microbial agents, particularly isoniazid. Further research

on the effectiveness of antimicrobial drugs in first infection is desirable.

*BCG Vaccination.* The basic premise for use of BCG is that the changes produced in the host by vaccination will protect in some measure against the hazards resulting from tuberculous infection. It is generally accepted that vaccination be restricted to noninfected persons, i.e., non-reactors to tuberculin. In general population groups, it has been usual to limit vaccination to the younger segments, in which there has been little opportunity for infection.

Recent well-controlled studies have shown that tuberculous disease is more likely to develop among those found positive to tuberculin than among those not reacting. Accordingly, chief attention from the point of view of tuberculosis control should be devoted to those found to react to tuberculin. It is obvious, however, that every tuberculosis program should include measures to prevent infection.

*The value of BCG vaccination* in controlling tuberculosis in the U. S. has been a matter of controversy in recent years. There is convincing evidence that vaccination in man with a strain of BCG known to be of high potency leads to some degree of increased resistance against tuberculous disease. How long this increased resistance persists is not known. BCG appears to be as safe as other vaccines in common use, but cases of progressive disease and death attributable to BCG have been reported.

*In considering disadvantages* attendant upon use of BCG vaccination, the tuberculin reaction was stressed. Since BCG vaccination converts nonreactors into reactors to tuberculin, the procedure makes it impossible to use the tuberculin test: (1) as evidence of recent infection in the individual; (2) as an index of infection in population groups; (3) for the location of sources of contagion; (4) as a preliminary screening device or, (5) for differential diagnosis. This is of increasing importance in the light of the current continuing decline in the prevalence of infection and manifest increasing concern over the hazards of excessive radiation by X-rays.

Wide use of BCG vaccination may lead to a false sense of security, which could



result in failure to observe precautions that otherwise might be taken.

Since 1946 numerous investigations have shown a wide range of variation from 0 to 80 per cent in the reported efficacy of BCG. The degree of protection afforded by the vaccine appears to be far from absolute. In a British Medical Research Council study, the morbidity rate among the vaccinated was only one-fifth of that reported for a nonvaccinated group of 13,200 studied concurrently; in a Public Health Service study in Puerto Rico, the rate was two-thirds of that recorded for some 27,000 controls concurrently studied.

In a Public Health Service trial of BCG vaccination in Georgia and Alabama there was no statistically significant difference in the tuberculosis developing among vaccinated and nonvaccinated persons after six years of observation. A striking finding in both the British and PHS studies was a high subsequent incidence of tuberculosis morbidity in persons strongly sensitive to tuberculin at the time of surveys.

The members of the committee were particularly impressed by the apparent variability in vaccinating potency of different BCG strains, as shown by laboratory studies and by the diversity of results in field trials. The significance of apparent variations in potency of strains is not yet understood.

Reductions in tuberculosis mortality have been as great in certain European countries that do not practice BCG vaccination as in those of comparable size and economic state in which BCG is widely used.

With all of these considerations in mind the committee did not believe that a categorical statement on the degree of protection afforded by BCG vaccination could be made.

The committee expressed the opinion that the use of BCG should be determined by local circumstances such as the strength of the tuberculosis program, the prevalence of tuberculosis in the community at

the time; and the probable risk of infection in the future. The question will arise chiefly where exposure is high and weakness in other means of control is recognized.

The committee is convinced that large-scale BCG vaccination programs, including routine vaccination of the newborn, are not indicated in this country. However, advantages of vaccination outweigh the disadvantages for tuberculin-negative persons who are exposed to a definite risk of infection. Under certain circumstances, the following individuals and groups are examples of suitable subjects for BCG vaccination:

1. Physicians, nurses, medical and nursing students, laboratory workers, and hospital employees. (If a hospital has established an adequate tuberculosis control program very little exposure to tuberculosis will occur in that institution.)
2. Persons unavoidably exposed to continued contact with infectious cases of tuberculosis in the home.
3. Patients, inmates and employees of institutions such as mental hospitals and prisons, in which case-finding programs indicate that exposure to tuberculosis is likely to be high.

It is the consensus of the committee that, in view of the apparent low risk of tuberculosis among present nonreactors in the United States, new investigations on the value of BCG cannot be made without excessively large study populations. For this reason, it did not recommend that the Public Health Service initiate new vaccination trials. However, it recommends strongly that the controlled studies on population groups already started be carried on as long as they furnish significant information on the rates of development of tuberculosis in the vaccinated and control groups now under observation.

Dr. Rene' Dubos	Dr. Gardner Middlebrook
Dr. Herman Hilleboe	Dr. Rufus Payne
Dr. Horace L. Hodes	Dr. James E. Perkins
Dr. Esmond R. Long,	Dr. Leon H. Schmidt
Chairman	Dr. Jacob Yerushalmi
Dr. Walsh McDermott	

# The JOURNAL

## OF THE ARKANSAS MEDICAL SOCIETY

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### PEDIATRIC SYMPOSIUM

## Metabolic Diseases in Pediatrics

EUGENE H. CRAWLEY, M.D.\*

In order to keep this discussion within the confines of allotted space and preserve clarity, we will confine our remarks to the conditions that confront us more frequently, with some comments on the newer concepts of treatment. The extent of knowledge on metabolic diseases has become so voluminous and has extended into the confines of other diseases until it is difficult to present any one disease without touching on other related syndromes. Some diseases have been so changed that they have lost their identity and are sub-classified as phases of other entities.

The celiac disease or syndrome has probably met with more reclassification than any other in this group. We once defined the disease as that of a child passing pale bulky stools, with abdominal distention, wasting, especially the extremities, stunted growth, marked anorexia and evidence of vitamin deficiencies. These were the babies who responded to the banana diet. The above concepts have now been altered by additional knowledge which has increased the complexity of differential diagnosis. We now know that mechanical obstruction of the digestive tract may result in such a syndrome and if it can be corrected will lead to a complete recovery of the child. Severe dietary deficiency may cause this syndrome as has been so clearly illustrated in the starvation syn-

drome seen in refugee camps and among the extremely poor economic groups of the world. Also this syndrome is seen in children with chronic intestinal infection which prevent normal absorption from the gut walls.

True or idiopathic celiac disease has been confined to a small number of children whose symptoms cannot be attributed to any of the above mentioned causes or to fibrocystic disease of the pancreas. The disease is insidious in onset developing about the age of six months but may occur as late as five or six years. The outstanding symptoms in the beginning are the extreme, irritability often simulating colic and the very distended abdomen. These children are sleepless and fretful long before the other symptoms appear. The distended abdomen remains large with little variation in relation to meals or bowel movements. The wasting occurs more gradual and the child may be plump, at first. The stools tend to become larger and more foul as the disease progresses, the frothy consistency varies and may not occur until later. The abdomen is characterized by a doughy feeling on palpation and some tympany. Anorexia is not always a constant finding. Some of these children have huge appetites and this may be one of the first symptoms of onset. In idiopathic celiac disease there is a marked absence of the respiratory symptoms such as coughing

\*1417 West 6th Street, Little Rock, Ark.



and bronchial, wheezing observed in the fibrocystic disease syndrome. The low blood sugar curve in a glucose tolerance test is a valuable aid in diagnosis as is a poor fat tolerance test if facilities are available to make the tests. But, as in many other instances these best serve only to confirm the other findings. Celiac disease may exist in varying degrees of severity. It is classified as mild, which may be only an intolerance to some carbohydrate, especially starches, steatorrhea, a large abdomen, slow growth, and anorexia. The mild form is often difficult to diagnose due to minimal symptoms and may have an irregular course with periods of remission and exacerbation often with no known reasons.

The treatment of the mild form consists of supervision of the child's diet, of a low fat, low carbohydrate and high protein regime. Therapy for both mild and severe must be done with tolerance and individual consideration of each child. The diet is the most important supervision item of therapy. Fruits, honey and bananas are high on the preferred list. Extra dosage of vitamins of all groups should be included. Immediate treatment of all infections must be imperative. Prophylactic treatment may be desired and these cases require diligent and careful psychic care of the child and parents with constant encouragement and a thorough explanation of the program of treatment, as well as the nature of the disease. Parents have every right to expect improvement and probably complete recovery, even in the severe form if they adhere to the planned course of therapy.

Mucoviscidosis or pancreatic fibrosis is a different problem but is often confused with celiac disease. Unfortunately the picture is not bright. This is a hereditary disease that follows the recessive pattern, and this should be explained to the parents when the diagnosis is made and spare the parents much later shock when other children may be found to have the disease.

We have learned much in recent years concerning this disease. There is much more pathology than can be explained by the destruction of the pancreas or failure to absorb vitamin A. This is a disease

effecting the function of all mucus glands, thus the name mucoviscidosis. The significance of the chlorides in sweat and the persistent predominance of certain bacteria in the respiratory tract have not yet been fully explained. In spite of all our ignorance of pathology we have been able to use our present knowledge to the fullest advantage in managing this disease.

The earliest manifestation of the disease may appear at birth in the form of a meconium ileus which require surgical correction and continued medical management. The more frequently occurring case is that of an infant who has had little or no symptoms during the first six months of life but begins to have reoccurring respiratory infections, persistent coughs and varying digestive symptoms. Often the respiratory symptoms are the only evidence of the disease for some months then the child develops large foul stools, and enlarged abdomen then wasting of the extremities and weight loss.

These variations in the developing of the disease have necessitated a battery of laboratory tests. The most important test is the demonstration of deficiency of pancreatic enzymes in the duodenal fluid. A tube is passed with comparative ease into the duodenum and allowed to remain overnight. Samples of fluid are withdrawn and tested for enzymes. This is a very reliable test. If enzymes are low it is pathognomonic for the disease. Tests for fat in stool and vitamin A absorption are helpful. X-rays of the lung depicting the emphysema, hyperaeration and atelectasis all are suggestive if there is supportive clinical evidence. The sweat analysis promises to be useful when the technical difficulties are overcome and standardization has been established.

Improved treatment has improved the prognosis until now we are able to point to patients twenty years of age, in fair health. The prolonging of life is due to better diagnosis, prophylactic antibiotics and improved nutrition with increase of caloric content of the diet, large amounts of vitamins in water miscible forms and pancreatin in some form before each feeding. The diet should be low in fat, rich in protein such as cottage cheese, protein milk, calf liver and simple carbohydrates,

such as honey glucose, bananas or banana powder and fruits. Salt should be added to food freely wherever possible to supply the deficit lost in sweating. This dietary regime must be elastic and accommodate each child's needs according to the physician's judgment for maintaining the best possible nutrition.

With the best dietary control we are yet confronted by the problem of the control of respiratory infections. This has been accomplished best by the use of prophylactic antibiotics. Terramycin, Aureomycin, Tetracycline and Sulfonamides are favored agents, reserving penicillin for special instances. It seems desirable to vary the drugs from time to time in order to avoid developing resistant strains of organism and overgrowths of simbiots. The dosage of prophylactic drugs must be varied with each child depending on the extent of pulmonary involvement. Aerosol therapy has been used to good effect but equipment places limitations on prolonged therapy. Utilizing all treatment to the fullest extent and the psychic preparation of patient and family for this prolonged disease provides a great challenge to the physician.

Another metabolic disease which has become more speculative through new knowledge is diabetes mellitus. The exact mechanism of insulin production in the pancreas and other factors related to the metabolism of carbohydrates are not yet clear. There is a familial incidence of the disease that cannot be overlooked. The effects of infections on the pancreas seem to have some importance in the development of this disease. Childhood diabetes is not to be compared too closely with the adult type. The juvenile or childhood diabetic is much more rapid in onset, often requiring dramatic treatment and the course is much more labile because of growth, variable activity and developmental dietary changes in the child.

Diagnosis of diabetes in children is usually no great problem but should be conclusive as early as possible, after the preliminary evaluation, the child should be completely studied in the hospital. The history of increased thirst, and urination are usually the first signs, followed by loss of weight. Increased appetite is not

constant and there may be complaints of anorexia. The child feels and looks tired, respiration is rapid, the skin is dry. Examination of urine for sugar and acetone gives the definitive answer. This should be followed by glucose tolerance tests and other pertinent test as indicated, such as blood RH, CO<sub>2</sub> determination, quantitative urine glucose measurements.

Treatment must meet the needs at hand. If the child is vomiting his fluids and electrolytes must be balanced and the simultaneous administration of insulin initiated. Acedosis and dehydration must be eliminated by carefully administered intravenous solution and fluids orally when tolerated. All this must be done with the aid of best available laboratory tests. No decision can be made accurately without such data.

Most authorities agree that regular insulin is required to establish control and that the longer acting preparation should be started after the characteristics of the disease in each patient are known. Some children may show marked response to insulin and require careful dosages. When control of Ketonuria, glycosuria and diet have been established then the PZI or lente insulins may be considered. The patient should be informed of their action and should expect to have to take a second dose of regular insulin, probably at the evening meal. There are few juvenile diabetics who can be controlled on a single injection of insulin daily. Every patient should aim for a nearly perfect control as possible even to the point of over control and slight insulin reactions. Control at the very best will show occasional glycosuria making constant vigilance a necessity. The recent introduction of test tape for testing sugar in urine has been a great aid to diabetic care and management.

The diet management in juvenile diabetics has been a great problem. We feel that a diabetic diet should be as near a normal diet as possible. In the beginning weighing the food is most important, then as progress is made weights can be changed quickly and with accuracy into household measures. This permits eating out of the home and a more nearly normal life for the diabetic. Some regula-



tions of the diet is necessary and Hartmanns recommended diet for 15 per cent calories in protein, 35 per cent in carbohydrate and 50 per cent in fat is a useful starting point. The child should be given calories required for ideal weight and twice that of the basal metabolism requirement. Special attention is required for adequate protein for growth. Every effort should be made to make the diet attractive and conform to that of the family. The unrestricted diet, however, has not been proven to be without some dangers.

The successful management of juvenile diabetes should be a continuous program. The patient and family should be carefully prepared and gradually educated under supervision in the hospital. Every test and new step should be explained to the patient and as soon as possible he should be taught to test his urine for sugar and acetone and keep a record of the results. He then should be taught to give his insulin himself as soon as possible. He should measure and inject his own insulin. When he is ambulatory he should be encouraged to be active and to simulate home activity as much as possible, for he will have to regulate himself again when he returns to home environment.

The patient and family must be prepared to live with diabetes with a positive approach. This indoctrination should start immediately. The patient must feel that he is normal and can live a normal life with only the restrictions of diet and insulin injections. He will be able to do anything within reason and that his restrictions are minimal. He should know what to expect in insulin shock and also the dangers of coma. If properly planned and managed a child of school age can soon become an expert on his particular case, regulating his insulin dosage and diet as required by his needs. Parents should encourage the child in his own management and act only as supervisors. A well managed diabetic often lives a more healthful life with less illness than normal children. Infections should be controlled promptly. The importance of proper care of diabetics during illness cannot be emphasized too much.

Recently new drugs have been used in the control of diabetics and have been

found helpful in some cases. These cases were adults. As yet no drug or hormone, other than insulin, has been found helpful in juvenile diabetes.

In a nation so well fed and weight conscious, some remarks must be made on obesity in children. Most physicians realize now that there are few disturbances of infrequent occurrence that may be termed endocrine disturbances associated with obesity. In most of the cases of obesity the only glands involved are the digestive glands. Certain rare lesions of the hypothalamus stimulate appetite and cause obesity. Pituitary disease may cause excessive weight gain. The term Froehlich Syndrome is being discarded. There is evidence that heredity may be a factor and that psychic factors in the family as well as the patient may be causes for obesity. We recognize overeating and lack of activity as the main causes of obesity, giving due consideration to children who are unable to adjust the caloric intake to the energy expenditure due to a combination of endogenous and exogenous causes.

Though a child obviously has no endocrinopathy the family and the child must be thoroughly convinced. A complete physical examination is usually sufficient to satisfy the physician. A child with a normal height rarely has an endocrine disturbance. X-rays of the skull should be made to rule out any intracranial disturbance, and an evaluation of the bone age is a fair gauge of thyroid function. Blood cholesterol may have some merit, as well as a routine blood count and urinalysis. All of this data should be carefully explained to the patient and family.

The treatment of obesity requires complete patient cooperation. He must desire himself to lose weight and be willing to follow instructions. An effort should be made to bring out any underlying causes for his overeating or lack of appetite. The rewards of weight loss should be emphasized repeatedly and all-out effort on the part of the physician and family should be put forth to aid and support the patient. The production of a conducive atmosphere is often the most important item of treatment.

The diet should be a moderate reduction and should be concise and clear. This gives the patient a definite point of reference which helps crystallize his efforts. He should be urged and warned not to lose weight too fast and in the first few weeks he may gain some weight, but then the loss will begin gradually. In order to make the adjustment to the new diet and break the old eating habits, the amphetamine drugs of the prolonged acting type are helpful. They should be continued over a period of several weeks until the new diet has been established, then leave them off, if possible. The dosages may have to be adjusted if the drugs cause sleeplessness. Frequent visits to the physician are necessary to aid in continuing the regime. During these visits the physician should try to clear up many of the psychic problems which may be the fundamental bases for the obesity. He should attempt to rehabilitate the patient in or-

der to prevent the reoccurrence of the old problems when the diet is relaxed. This is a big order, but is the determining factor in the success of the treatment.

There are some children who tend to be overweight until the onset of puberty. At that time there is a redistribution of fat and the child develops the adult figure, within normal proportions. This occurs in certain families and a careful history will be helpful. Diets and drugs are often of little value in these cases. Control of the weight with little or no reduction may be the main result.

There remains a number of metabolic diseases that are now much better understood and great strides have been made in their treatment such as those related to protein and sugar metabolism, acid-base and water balance syndromes. There are yet many doors unopened for the lack of a key.



# Respiratory Infections in Children

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In any group of pediatric problems, one first thinks of respiratory infections for we all see numerous patients each day whose complaints are associated with the respiratory system.

The most common illness that involves the respiratory system is acute nasopharyngitis or the common cold. In the usual case, unless complications occur, we are not consulted. This is not true, however, in the child under 6 months of age. The nasal obstruction accompanying the cold interferes with sleeping and feeding. This causes much fussiness by the infant and much concern by the mother.

We now have in our armamentarium, a combination of drugs that seem of particular benefit to this age child. It is a mixture of two antihistamines, Pyrilamine Maleate and Prophepyridamine Maleate plus Phenylpropanolamine Hydrochloride. This along with increased humidity and mild nose drops will help in the symptomatic treatment of the cold and allay many an anxious mother.

I want to bring up a few points here that are often overlooked. If the nasal secretions are thick, very frequently they will need to be thinned out by the use of a normal saline solution (1 level teaspoonful of salt to a pint of water) before nose drops are effective. Oily nose drops should not be used and a mild neosynephrine solution causes very little central stimulation or depression. One must be extremely careful in using new products on infants, particularly, because of the possibility of toxicity, which becomes evident after clinical use. The author has personally had 4 infants under 18 months of age who had very marked central nervous system depression due to Tyzine; two of these children to a point of coma that lasted up to 12 hours. Antibiotic nose drops are not particularly effective due to the normal ciliary activity of the mucosal cells which prevent adequate contact. Nasal jellies are difficult to use on children. Nasal aspirators are helpful at times along with the normal

saline to clear the air way for use of the vasoconstrictor nose drops.

Cough syrups are very useful particularly in a child with a severe cough and a sedative included in the syrup has been advocated for centuries. Henroch (6) wrote, "when carefully administered, I have never seen bad results," and that is still true today.

## HERPANGINA

In the past two years we have had called to our attention an infection that has been previously described 30 years ago by Zahorsky (2). It is a specific infectious disease, largely of summertime, that affects children and is called herpangina.

The etiology has been identified as one of the group A Coxsackie Viruses and the majority of cases are in children under 8 years of age. It is a highly infective disease usually spread directly from person to person. The incubation period is around 4 days and a permanent immunity seems to follow the infection.

The clinical picture is one of a sudden onset with a fever of 101 degrees to 105 degrees. In Zahorsky's description, "the child feels tired and often complains of pain in the back and extremities. Headache and pain in the back of the neck are frequently marked symptoms and lead one to suspect Poliomyelitis at times."

The feature that leads one to the diagnosis of herpangina is the presence of characteristic throat lesions. These are gray-white papular-vesicular throat lesions about 1-2mm in diameter or slightly larger ulcers. A zone of erythema surrounds the lesions. The sites of distribution of the lesions are on the anterior tonsil pillars, the soft palate, the uvula and the tonsils. The lesions are present usually around 4 days and early there is a diffuse pharyngeal hyperemia. Occasionally a mild rash will be present over the trunk and extremities, white blood counts are usually under 10,000 and cerebrospinal fluid is negative.

The course is usually benign and the prognosis is very good. Antibiotics are

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of no value in the treatment and should not be given. The only clinical condition frequently confused with herpangina is infectious gingivostomatitis due to the herpes simplex virus. Lesions of this disease occur primarily in the mouth and less in the pharynx, the fever is about the same, onset is more gradual and the lesions last from 8 to 14 days.

The importance of herpangina lies in the ability of the physician to make the diagnosis, thus allaying the fears of sudden fever in the summer time and assuring the parents that antibiotics are not needed.

#### PHARYNGOCONJUNCTIVAL FEVER

Another disease entity that has been recently described is Pharyngoconjunctival Fever. It is characterized by fever, pharyngitis, conjunctivitis and cervicelymphadenopathy associated with infection by the Adenovirus Type 3 (3). This virus is one of a group of 14 found in the tonsils and adenoids and associated with acute respiratory diseases. It also has been referred to as APC (adenoid-pharyngeal-conjunctival; Virus, ARD (acute respiratory disease virus) and RI (respiratory illness) Virus. The only significant thing about this is that it occurs in epidemic in schools, orphanages, and camps and is highly communicable though not particularly serious.

In the past month Parke Davis has put on the market a vaccine made up to resist three of the APC group but with only 3 of the 14 groups covered, I am dubious of the applicability.

#### BRONCHIOLITIS

Acute Asthmatic Bronchitis or Bronchiolitis is one of our most common respiratory infections in infants and young children. It is thought by most observers that the main etiology is probably of a non-bacterial nature as a leukocytosis is observed infrequently. However, in studies done by culture *D. Pneumoniae* and *H. Influenzae* have been recovered in a certain percentage of the cases.

The clinical course of bronchiolitis begins with a mild upper respiratory tract infection which usually lasts up to a week and causes the child no apparent trouble. This changes abruptly with the onset of

pulmonary involvement. Marked respiratory distress develops with an increase in respiratory rate up to 60-80 per minute. A severe dry cough develops and at times it is almost constant. Air exchange is obviously reduced and the chest may have a rounded appearance. On auscultation there are numerous ronchi plus sibilant and sonorous rales that are indistinguishable from those noted with asthma in older patients. The odd thing is that these children although acutely ill do not have any fever and do not usually run any fever unless secondary infection develops elsewhere and the most frequently occurring is an otitis media. X-rays reveal a generalized obstructive emphysema picture with hyperaeration.

Treatment is directed at keeping the secretions as fluid as possible. This is accomplished by heavy concentration of water vapor without heat, and by expectorants. It is very questionable that *alevaire* or other wetting agents are any more beneficial than plain vapor. ACTH has been tried also on these infants but response was no more rapid. Antibiotics are given to all my patients as this is one time you should certainly cover them in order to prevent secondary bacterial complications and since bacterial components are found in a good percentage of these cases antibiotics are in order. Even with the best of treatment these infants are slow to respond and treatment is needed 5-10 days and even up to 2 weeks in the severely ill. Usually they make a full and complete recovery and recurrences are unusual.

#### PULMONARY TUBERCULOSIS

I want to bring up tuberculosis of the respiratory system so that the newer concepts of treatment may be emphasized for there has been considerable change in our attitude in the past 2 years. 95 per cent of tuberculosis in childhood is pulmonary resulting from inhalation of droplets containing the tubercle bacilli. This lesion, developing within 2-6 weeks, has been well described as the primary complex. 4-6 weeks after the onset of the infection the tuberculin test becomes positive. In the majority of cases this entire process is attended by few, if any, symptoms and then goes on to a slow and asymptomatic



healing over a period of 6-24 months. This seemingly good prognosis without treatment is one reason for our dilemma in trying to decide whether or not to treat primary tuberculosis with antimicrobial drugs. We must consider too, the good things that take place when a case of primary tuberculosis is adequately treated. First: there have been no authentic reports to date of tuberculous meningitis in a child adequately treated for primary tuberculosis with isoniazid. Second: there has been a great decrease in the incidence of other forms of progressive primary tuberculosis. This is particularly true of bone tuberculosis (4-5). Third: it appears logical that, as in other infectious diseases, the earlier in its course tuberculosis is treated with a potent antimicrobial, the more effective the antimicrobial will be in preventing subsequent endogenous exacerbation, particularly after some host responsiveness has developed, as indicated by a positive tuberculin reaction in the case of tuberculosis.

This leaves the practitioner with the problem of how to diagnose tuberculosis early and then how to treat it adequately. Diagnosis is best carried out in children by the use of the tuberculin skin test. The most convenient and accurate procedure thus far devised has been the use of freshly prepared Old Tuberculin, 1:1,000 or the new intermediate strength of P. P. D. The patch test has given a lot of false positives. The presence of at least 5 mm of induration occurring 48 hours after instillation indicates a positive test. This should be done routinely at 6 months and 12 months, then yearly, particularly in children who are in the lower income group and consequently have had exposure. Any child under 3 years, who has a positive tuberculin test should be treated as well as children from 3 to 10 years if diagnosed within 6 months of conversion from negative to positive. In this age group they should also be treated if they have a strong family history of tuberculosis and belong to one of the racial groups which have poor resistance to tuberculosis; if there is a large lesion of active primary disease on x-ray and they are clinically ill; if they have radiological evidence of a healed primary lesion

and then get measles. In this event 3 months of therapy should be adequate if no evidence of reactivation of the lesion within that time. Children from 10-16 years old should be treated if there is a history of tuberculin conversion within one year; if a girl is in the period extending from about 6 months before to about 6 months after the onset of the menses and has a history of previously having had radiological evidence of active primary disease she should be treated for one year because of the tendency for reactivation to occur at this age; if there is definite radiological evidence of active primary infection.

In the treatment isoniazid is given in dosage of 10 to 20 mgm per kilogram per day for one year. Some believe that any excess of 150 mgm per day is not utilized and therefore wasted. Streptomycin sulfate should be administered intramuscularly in a dose of 200 mg. per kilogram per week in divided doses for one month, only in those hospitalized and clinically ill children with large lesions on x-ray.

In treating children with isoniazid it is not necessary to require long hours of rest previously thought to be so necessary. Physiological and emotional balance are sought by allowing the child to lead as normal and active life as possible. This includes school, and it should be stressed over and over to the parents that the child with asymptomatic primary tuberculosis is not contagious or a hazard to other children.

#### HISTOPLASMOSIS

The last disease, I want to mention is not purely a respiratory disease but the respiratory picture is the one we see most often. Histoplasmosis is our most common systemic fungus infection tending in many ways to simulate tuberculosis and often being confused with that infection.

We have known about histoplasmosis since 1905 (7) and have had a skin test (8) for several years. It was not until about 12 years ago that Christie and Peterson (9) called to our attention its prevalence in this part of the United States. It is felt that man acquires his infection directly from the growth of the fungus in the soil and that there is little danger

of the infection being transmitted directly from person to person.

The clinical picture varies from a single isolated primary lesion completely asymptomatic, to one which is progressively disseminated by the blood stream and results in an overwhelming generalized parasitization of the host with marked cachexia and death. Peterson and Christie (10) have typed the disease into four groups:

Type I. Benign infection with very few symptoms that produce calcification in the lung.

Type II. More severe infection with symptoms lasting for weeks to months with the patient overcoming the infection.

Type III. In which local lesions develop, mainly in adults.

Type IV. General disseminated infection with fatal outcome occurring most often under 2 years and over 50 years.

In children the most common symptoms that occur are a chronic cough that will not respond to the usual regime of therapy, loss of weight, loss of appetite and a recurrent fever that may vary from a mild almost imperceptible one to a high fever that persists for weeks. There might be night sweats. Unless there is dissemination, generally we do not have spleen and liver enlargement.

At this stage you see the symptoms simulate a primary tuberculosis and x-ray does little to help clarify the picture as the lesions are very similar to an early miliary tuberculosis. The diagnostic point is the histoplasmin skin test which

we routinely do on all patients that present any evidence of a chronic infection. The histoplasmin skin test is administered intradermally just as in the tuberculin skin test and is read in 48 hours.

The treatment of histoplasmosis is merely supportive as no agent has proved curative. This is true in children and most go on to a complete recovery.

#### References

1. Brainerd, W. K. and Olmsted, R. W.: Toxicity due to the Use of Tyzine HCL, *Journal of Pediatrics*, 48: 157, 1956.
2. Zahorsky, J.: Herpetic Sore Throat, *Southern Medical Journal*, 13: 871, 1920.
3. Bell, J. A., Rowe, W. P., Engler, J. I., Parrot, R. A., and Huebner, R. J.: Pharyngoconjunctival Fever. *Epidemiological Studies of a Recently Recognized Disease Entity*. *J.A.M.A.*, 157: 1083, 1955.
4. Bosworth, D. M. and Fielding, J. W.: Chemotherapy in Certain Forms of Juvenile Tuberculosis. *New York State J. Med.*, 54: 2327, 1954.
5. Drolet, G. J., and Lowell, A. M.: Where to Tuberculosis? The First Seven Years of the Antimicrobial Era, 1947-1953. *American Rev. Tuberculosis and Pulmonary Diseases*, 72: 419, 1955.
6. Henoch, E.: *Diseases of Children*. New York, Wm. Wood and Co. 1882.
7. Darling, S. T.: A Protozoan General Infection Producing Pseudotubercle in the Lungs and Focal Necrosis in the Liver, Spleen and Lymph Nodes. *J.A.M.A.*, 46: 1283, 1906.
8. Van Pernes, P. A., Benson, M. E., and Holinger, P. H.: Specific Butaneous Reactions with Histoplasmosis, *J.A.M.A.*, 117: 436, 1941.
9. Christie, A., and Peterson, J. C.: Pulmonary Calcification in Negative Reaction to Tuberculin. *Am. J. Pub. Health*, 35: 1131, 1945.
10. Peterson, J. C., and Christie, A.: Histoplasmosis. *Ped. Clinic of North America*. Feb. 1955.



# Some Interesting But Rare Disorders Seen In Pediatric Practice With Case Report Of Ritter's Disease With Recovery

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This discussion will be limited to three rare diseases which have been observed by the author in the course of her pediatric practice in Arkansas. Two of the conditions to be discussed are important for, if the physician in practice recognizes them early, treatment available greatly improves the prognosis. These two conditions are: Ritter's Disease and Premature Cranial Synostosis. The other condition to be discussed is Cat Scratch Disease.

Cat scratch disease resulting from the scratch or bite of a cat was first recognized as a specific clinical picture by Debré, in France, in 1950. Forshay, in 1932, first postulated the condition when he suspected a group of patients of having tularemia following the scratch of a cat. These two men found that the cat's marks often persisted and were followed by pyrexia and generalized systemic reactions. The regional lymph nodes enlarge and tend to break down and discharge a sterile pus but without lymphangitis appearing. More unusual symptoms are: cervical adenitis, transient pulmonary infiltration and an oculoglandular form of the disease associated with conjunctivitis.

Neurological signs of cat scratch disease were first described in the United States by Stevens<sup>3</sup> in 1952. Paxson and McKay<sup>1</sup>, in July 1957, reported two of their cases and reviewed twelve other well substantiated cases of cat scratch disease in which neurological symptoms were manifest. These authors state that, in the absence of a specific diagnostic test, the diagnosis of encephalopathy accompanying cat scratch disease must be based on circumstantial evidence and this evidence must include: (1) history of cat scratch or of contact with a cat; (2) regional adenopathy; (3) positive skin test with cat scratch antigen; (4) histologic picture of biopsied lymph nodes consist-

ent with cat scratch disease, plus a sterile culture obtained from the same node; (5) otherwise unexplained encephalopathic symptoms developing within six weeks of the appearance of adenopathy. When diagnostic tests are available for specific neuropathic viruses, an attempt should be made to isolate the viruses from the stool and spinal fluid of persons suspected of encephalopathy due to cat scratch disease in order to rule out double infections that might otherwise be overlooked. The condition is self-limited and usually has no residual sequelae.

Since 1950, about two hundred cases of this disease have been reported from various parts of the world, mainly Great Britain, United States, India, Switzerland and France.

The etiologic agent has not been identified but it is thought to be a virus of the psittacosis lymphogranuloma venereum group. Cats show no evidence of illness associated with their ability to transfer the agent to human subjects and have no reaction to the intradermal injection of its own antigen, so that their role is considered to be simply that of a vector.

Patients with cat scratch fever consistently have a positive skin reaction from the intradermal injection of the antigen prepared by the Frei procedure from an involved lymph node of a known case. The skin test is performed by injecting 0.1 cc of the antigen intradermally and observing the site at intervals of 48-72 hours. A positive reaction consists of an indurated, raised erythematous wheal 5 mm or more in diameter surrounded by a zone of erythema 30-40 mm in diameter.

Since the disease is more likely to affect young people, the differential diagnosis is important. The cat scratch syndrome must be differentiated from simple pyogenic adenitis, tuberculous adenitis, tularemia, Hodgkin's Disease, Lymphogranuloma venereum, fungus infections and rheumatic fever.

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The prognosis of this disease is uniformly good.

There is no specific treatment known to be of definite benefit. Possibly chloramphenicol or terramycin may speed up regression of nodes and shorten the febrile course. Occasionally drainage by aspiration will hasten resolution of fluctuant nodes but there is some risk of this resulting in a draining sinus.

The so called rare disease often turns up when least expected. For example, the second newborn the author was called to see when she first started practice developed the characteristic features of Ritter's Disease within twenty-four hours after she had examined what appeared to be a normal, twelve day old, male infant. The details of this case will be discussed later.

Ritter's Disease is a disease entity described by Ritter von Rittershain<sup>6</sup>, a German physician, in 1878 and based upon his observation of two hundred and ninety-seven cases in Foundling Asylums in Prague from 1868-1878. One hundred sixty-five were males and one hundred thirty-two females. Mortality in this group was 48.8 per cent. It is, strictly speaking, a disease of the first few weeks of life, namely in the first to the fifth week. Between eighty and one hundred twenty cases have been reported singly or in small groups of two or three since Ritter's report.

Ritter's original description of the condition, also called acute exfoliative dermatitis of the newborn, leaves a very definite picture which cannot be mistaken on the rare occasions when it is now seen. He emphasized the widespread loosening of the epidermis from the corium without the preliminary formations of definite blebs or bullae, the rapid extension of the process of epidermolysis in the course of a few hours, and the exposed areas of dry, red corium free from exudate but surrounded by shreds of loosened epidermis. Ritter regarded the disease he described as a form of pyogenic infection of the skin. He believed that his disease constituted a definite clinical entity of an infectious nature, occurring frequently in the form of epidemics. Evidence continues to accumulate that Ritter's Disease is the result of infection in the infant which is

not always apparent. The very fact that the prognosis has been completely altered with the use of antibiotics makes this theory of the etiology even more certain.

This disease is more frequent in some countries of central Europe such as Germany, Czechoslovakia and Austria. It is rare in Italy, France, England and Rumania. A good many case reports are in Spanish and from Spain. The number of cases reported in the United States is small. Since 1940, approximately thirty cases have been reported.

#### CASE REPORT

EGH, Jr., a twelve day old male infant was seen by the author at the patient's home for a well child examination 12/4/45. This was the mother's first baby and she called the pediatrician on referral from the obstetrician mainly to get help on the baby's routine and feeding supervision. The home visit was made at noon that day. The skin at that time was a normal pink and the baby's general physical condition was excellent. The feeding was artificial and consisted of evaporated milk and dextro-maltose. By 6 p. m. the following day there was what the mother interpreted as a rash on the buttocks. (Actually there was epidermolysis in that area.) By 10 a.m. the next day the doctor was called again to examine the child and at that time the mother stated the eyes had discharged pus all night, were swollen and glued together. The skin had peeled off the neck, scrotum and buttocks during the night.

Physical examination at the time of this home visit showed a most dramatic change in the child's physical condition, from an apparently well baby on the 12th day of life, to the following: The temperature was 100.5 degrees R. The skin of the forehead and eyelids rubbed off easily (Nikolsky's sign). This fact was accidentally discovered when the doctor tried to get a smear from the pus pouring out of the eyes.

Nose — There was a profuse, purulent discharge from the nose.

Face — Almost beefy red with radiating, linear markings around the mouth and nose with peeling, leaving a raw, dry surface.



Mouth — There was no injection of the pharynx.

Neck — Small vesicles filled with pus were in the creases.

Chest — The heart and lung examination was negative.

The entire epidermis of the buttocks, scrotum and groin was gone and left a dry, raw, red surface. A smear of the discharge from the eyes, taken in the home, showed Gram positive cocci. Culture of this same discharge taken in the hospital was reported to be pure culture of *staphylococcus aureus*. The Wassermann tests on both mother and baby were negative.

The infant was admitted to the University Hospital Contagious Disease Unit on 12/5/45 because no other hospital in Little Rock would take such an infectious case. He was placed in an incubator, thermostatically controlled, to maintain body heat, and placed on a sterile sheet without clothes. He was handled entirely by three special nurses who wore sterile gloves. Penicillin, though scarce, had recently become commercially available and 500 U/cc was dropped into the eyes four times daily, plus 15,000 U of aqueous penicillin administered every three hours. The head and face were painted with 2 per cent aqueous gentian violet and warm, wet, K m n O<sub>4</sub> 1:5000 dilution sterile packs were placed on the rest of the body. The second day of illness calomine lotion with Xeroform gr V to each ounce was substituted for the gentian violet and patted on the body surfaces frequently.

Dr. Ewell Thompson, a dermatologist in Little Rock, was called to see this case in consultation, 12/7/45, and concurred with the diagnosis. He gave the child a 10-20 per cent chance of survival inasmuch as in the past many of these infants had died from renal disease, multiple skin abscesses, pneumonia or lack of proper nutrition and inability to maintain body heat.

A severe anemia developed by the end of the first week and this was treated by multiple small blood transfusions. Severe abdominal distention occurred when the baby sucked his formula from a bottle and this was overcome by tube feeding small amounts at frequent intervals. Pitresin,

prostigmine and a colon tube were all used to relieve the distention. Some O<sub>2</sub> was necessary when abdominal distention was so severe as to cause respiratory distress.

The infant was discharged well on 12/21/45, sixteen days after admission to the hospital. He will be twelve years old on November 25, 1957, and has had unusually good health throughout these twelve years.

A case very similar to the author's was presented by G. Borsson<sup>4</sup> of Paris in 1935.

Ritter's disease is generally regarded as more malignant and fulminating than Leiner's disease. It occurs within the first few weeks of life and is characterized by the formation of bullae, areas of denudation and a positive Nikolsky's sign, whereas Leiner's disease<sup>5</sup> is thought to appear somewhat later, to be less often fatal and is characterized by an essentially dry exfoliation.

The third condition to be discussed is oxycephaly produced by premature synostosis. This is a constitutional anomaly. The head is wide and tower shaped, peaked at the vertex. There may be an adnoid facial expression and exophthalmos. The premature closure of the sutures may produce a long narrow head with bulging forehead and occiput resulting in a scaphocephalic skull. Variations in head shape will depend upon which sutures are involved and these may be multiple.

Figures on incidence of this condition vary from 5-12 per cent oxycephalic individuals in the general population. Synostosis is uncommon in more than one member or succeeding generations of a family<sup>12</sup>. The majority of cases are found as isolated instances.

The pathology of this condition is most interesting. In the normal newborn infant the bones of the cranium are still somewhat separated but, soon after birth, the definitive sutures are established. In the sutures, the edges of the flat bones are separated by a layer of fibrous tissue which represents a remnant of the original membranous skull. Growth of the bones of the vault takes place in this fibrous strip. When the sutures are obliterated this tissue ceases to grow and

disappears. The definitive sutures, such as coronal, sagittal and lambdoid, remain open into adult life and do not begin to close before the thirtieth year.

In the various forms of this condition, one or several of these sutures are obliterated before or soon after birth, and the growth of the adjacent bones is inhibited in a direction at right angles to the obliterated suture. As a result, the diameter of the skull is reduced in this direction and a compensatory growth takes place in regions where open sutures permit it.

Pressure symptoms develop in many but not all cases, for example; rarely if the coronal suture's premature closure is unilateral. Although there may be some elevation of intracranial pressure early, symptoms are usually not observed until functional closure of the other sutures at about two years of age.

Bilateral premature closure of the coronal suture frequently leads to serious complications since the brain or adjacent structures may be damaged by compression. The patient complains of headache, frequently has loss of vision and at times there may be convulsions. The orbits are shallow, thereby producing exophthalmos. There may be strabismus and nystagmus and examination of the fundi may reveal papilledema and optic nerve atrophy. The base of the skull and the facial bones are often hypoplastic. The palate is highly arched and sometimes cleft. Mental development is often but not always retarded.

Other congenital malformations often accompany craniosynostosis such as, cardiac anomalies, choanal atresia, or defects of the elbow joints, knee joints and parietal bones. Syndactylism is the most frequently associated anomaly so that acrocephalosyndactyly has become a well established syndrome.

The important consideration for the physician in practice is to suspect this condition and x-ray the skull. In craniosynostosis when there is compression of the brain, x-rays reveal marked convolutional atrophy, absence of one or more sutures, shallow orbits and underdevelopment of the sinuses, in addition to the abnormal shape of the skull. This condition must be differentiated from the fa-

milial form of high skulls in which premature closure of the sutures doesn't take place, and microcephaly in which the head size is small owing to failure of the brain to grow. In these there is no increased intracranial pressure.

If surgical repair is performed before there is significant cerebral or visual damage from compression of the brain, it appears that the late mental and visual defects can be avoided. Also, there is improvement in the shape of the skull and this has a favorable psychological effect. McLaurin and Matson<sup>8</sup> stress the importance of operation within the first six months of life at least, and the earlier it is done, the better the results, assuming the diagnosis has been clearly established.

Surgical treatment consists in linear craniectomy along the prematurely closed suture with the insertion of polyethylene film over the edges of the bone to prohibit its regeneration.

#### SUMMARY

Three interesting though relatively rare conditions seen in pediatric practice have been discussed, namely cat scratch disease, Ritter's Disease (dermatitis exfoliativa neonatorum) and craniosynostosis. A case report of an infant with Ritter's Disease with recovery has been presented.

Stress has been placed on the importance of early diagnosis of the last two conditions mentioned because of present day therapy which has greatly improved the prognosis in both of them.

#### Bibliography

1. Paxson, E. M. and McKay, R. J. Neurologic symptoms associated with cat scratch disease. *Pediatrics*, 20:13. 1957.
2. Lyon, R. L. Cat Scratch Fever, reactivation by intradermal tests. *Lancet. Lond.*, 271 (6941), 8:556. 1956.
3. Stevens, H. Cat scratch fever encephalitis. *Am. J. Dis. Child.*, 84:218. 1952.
4. Borsson, G. Case following epidemic pemphigus neonatorum; argument in favor of infections and contagious pathogenesis of dermatitis exfoliativa neonatorum. *Nourisson*, 23:28. 1935.
5. Cole, H. N., Jr., Hodges, R. G., Silver, F. F. Relationship between Ritter's Disease and Leiner's Disease. *AMA Arch. Dermat. and Syph.*, 70:443. 1954.



6. Rittershain, Gottfried Ritter von. Die exfoliative dermatitis die jungeren sauglinge. Zentral-Zeit f. Kinderheilk, 2:3. 1878.
7. Kendall N. and Aergerta, E. E. M. J. Ritter's Disease: Review of literature with report of a case. J. of Pediat., 15:733. 1939.
8. McLaurin, R. L. and Matson, D. D. Importance of early surgical treatment of craniosynostosis. Pediatrics, 10:637. 1952.
9. Rubin, M. I. Premature Synostosis (Cranio-stenosis) and Associated Phenomenon. Brennerman's Practice of Pediatrics, Chapter 25. 1956.
10. Ingraham, F. D., Alexander, E., Jr. and Matson, D. D. Clinical studies in craniosynostosis; analysis of 50 cases and description of method of surgical treatment. Surgery, 24:518. 1948.
11. Park, E. A. and Powers, G. F. Acrocephaly and scaphocephaly with symmetrically distributed malformations of extremities, study of so-called acrocephalosyndactylism. Am. J. Dis. Child., 20:235. 1920.
12. Nelson, Waldo E. Textbook of Pediatrics (6th Ed.) 515. 1954.



## Neoplasms in Childhood

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Malignant neoplasms are one of the leading causes of death from disease in childhood. Statistically these deaths occupy third place, being exceeded only by accidents and pneumonia. Realizing the significance of this, I think that all of us having children as patients should always consider cancer in our differential diagnosis.

The early symptoms of cancer in childhood are sometimes vague, often simulating symptoms of benign diseases. Usually cancer in early life is a rapidly progressive condition in which extensive loss of weight, anemia and pain may not be the predominant symptoms. Other symptoms to be considered are vomiting without nausea, recurrent dizziness, headaches, anorexia, partial loss of vision, painless masses in any location, persistent large lymph nodes, and progressive bone pain in one extremity.

Until a cure for cancer has been found our main effort should be toward early recognition and treatment. To do this it is important for the physician to be aware of the symptoms of cancer, examine patients at regular intervals, and teach our patients to seek help whenever they have unusual swellings or vague pains.

This is a summary of some of the recent articles on childhood cancer and since all types are too numerous to be discussed completely, we will consider only the more common ones seen in pediatric practice.

I. BRAIN TUMORS are the most common malignant tumors in children. Fifteen per cent of all brain tumors occur in children, usually over four (4) years of age and rarely at birth.

A. The MEDULLOBLASTOMA is a soft highly malignant tumor, usually occurring in the cerebellum. The common symptoms are unsteadiness in a child who hitherto had been walking normally, headaches, early morning vomiting, nystagmus and limb in co-ordination.

B. The ASTROCYTOMA occurs in any age group and is usually located in the cerebellum.

C. The EPENDYMOMA is found either in the fourth ventricle, cerebellum, or the lateral ventricles of the brain.

D. The CRANIOPHARYNGIOMA is derived from the remnants of the cranio-pharyngeal pouch. This tumor may offer symptoms of hormonal disturbance, diabetes insipidus, or increased intracranial pressure.

II. GLIOMA (retinoblastoma) is a neoplasm of retinal analogues, mostly occur-

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ring within the first three years of life. The first sign of a retinal glioma usually is dilation of the pupil of the affected eye. This is frequently disregarded until the tumor has grown large enough to be visible through it as a white or gray reflex.

III. BONE TUMORS are the second most frequent malignant tumors in childhood. The bones most frequently involved are the femur, tibia, vertebrae, mandible, and humerus. The common primary malignant bone tumors are osteogenic sarcoma and Ewing's sarcoma. Osteochondromas and giant-cell tumors are usually benign, however, they may become malignant. Often the symptoms of bone cancer are vague, however, pain localized to one area of the skeleton, palpable masses, restriction of joint motion should always bring to our mind the possibility of bone tumors. When in doubt X-Ray and laboratory facilities should be made available to the patient.

IV. GENITOURINARY TUMORS account for almost half the deaths from cancer under five years of age. The Wilms' tumor or nephroblastic embryoma is the most common tumor affecting the kidney itself and is also the most common abdominal tumor found in children. The usual age at discovery is two or three years of age, and it is rare after age of seven. It may cause no symptoms and in a high percentage of cases it is discovered only by chance during routine abdominal palpation. Other symptoms that may be associated with this tumor are hematuria, difficult urination, weight loss, anemia, and abdominal pain. Hematuria and hypertension makes the prognosis worse because this usually means invasion of the pelvis. Treatment is nephrectomy and postoperative roentgen radiation. The prognosis is grave, however, cure rates up to fifty per cent (50%) have been reported when the tumor has been found in an early stage.

Other genitourinary tumors are kidney sarcomas, teratomas, carcinomas, hypernephromas, carcinomas of the prostate and teratomas of the testes.

V. The NEUROBLASTOMA is a tumor arising from immature cells of the sympathetic nervous system. It is one of

the most common tumors of infancy and is practically confined to that age group. The primary lesion usually occurs in or around the adrenal gland. The kidney itself is affected only by a secondary invasion. The clinical picture is usually that of an insidiously developing malaise, anemia, anorexia and mild fever. These symptoms associated with a vague abdominal mass in a small child are suggestive of neuroblastoma. Treatment consists of surgical removal and X-Ray therapy. This is one of the highly radiosensitive tumors.

VI. SUPRARENAL TUMORS, hyperplasia, and cysts may be associated with gigantism, virilism, hirsutism, paroxysmal hypertension, feminization or masculinization, increased height, pseudohermaphroditism (adrenogenital syndrome) and Cushing's syndromes.

VII. OVARIAN TUMORS in children are rare. It is estimated that they account for approximately one per cent of all tumors occurring in children of both sexes under fifteen years of age. The majority of these can be classified into three main groups.

A. Benign teratoma is the most common ovarian tumor in the pediatric age group.

B. Simple cyst and multilocular cyst account for about thirty per cent of cases. Most cystic enlargement of the ovary are retention cyst.

C. Malignant neoplasms may be classified into four main types.

1. Carcinoma, in which the prognosis is always poor.

2. Dysgerminoma is a tumor that has no influence on the endocrine function.

3. Granulosa Cell Tumor is one of the tumors that secretes estrogen and produces feminizing effects simulating precocious puberty.

4. Malignant Teratoma which is considered highly malignant.

Tumors of the body of the uterus and cervix are much less common than those of the ovary. Most of these are carcinomatous and are malignant.

VIII. LEUKEMIA is the third most frequent neoplastic condition usually seen in pediatric practice. It is a proliferative disorder of leukocyte production believed to be neoplastic in origin. Leukemia in



infancy and childhood usually is acute in onset and course, although occasionally chronic forms, similar to those of the adult, are encountered. The usual symptoms in all forms of leukemia are pallor, weight loss, sore mouth, bleeding gums, bone destruction, petechia, and purpuric spots. Pain in bones or joints is a common early symptom and is frequently mistakenly diagnosed as rheumatic fever.

To date there is no known curative treatment, however, in recent years a number of therapeutic agents have made temporary remissions of acute leukemia possible. The agents of greatest value are ACTH and cortisone (100 to 250 mg. per day), Aminopterin (0.25 to 0.5 mg. per day or every second day) and 6-Mercaptopurine (25 to 50 mg. per day). Aminopterin and 6-Mercaptopurine are toxic drugs and must be administered with care. Antibiotics and blood transfusions are important additional measures.

IX. HODGKIN'S disease is the most common type of malignant lymphoma occurring in children. It is considered to be of neoplastic origin, although implication of an infectious agent is possible. The lymph nodes are the primary site of origin especially in the cervical area. The nodes become progressively enlarged, often to an extreme degree, are firm and rubbery, non-tender and loosely bound together in groups by fine connective tissue. As the disease progresses, fever, cachexia and pruritus occur. Prognosis is poor and

death in untreated cases usually occurs within two to three years. It is doubtful that cure has been achieved, however, surgical extirpation followed by roentgen ray irradiation, and the use of nitrogen-mustard compounds have provided the best results.

X. OTHER MALIGNANT TUMORS FOUND LESS FREQUENT — Tumors of the skin are found frequently, but fortunately most of these are benign in nature. The rarer skin tumors, some of which are malignant, are carcinomas, dermoid cysts, diffuse endotheliomas, leukemic tumors, lymphoblastomas, lymphosarcomas, melanomas and neurofibromatosis.

Congenital tumors of the lung are usually dermoids or teratomata. Often they are symptomless unless they become infected secondarily.

Carcinoma of the thyroid occurs in approximately two per cent of all patients with thyroid disease. These tumors tend to metastasize to the lymph glands of the neck, the lungs and the skeleton.

The above is merely a summary of some of the more frequent tumors found in childhood. Unless treated the average life span of a child after developing one of these neoplasms is only one year. With this in mind all physicians dealing with children should be constantly alert to the fact that childhood cancer is common and to date the best chance for recovery is early recognition and treatment.

**A TEACHING SEMINAR**  
**FROM THE**  
**UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE**

## The Systemic Mycotic Diseases

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In the past decade, increasing interest has been given to mycotic infections. While this undoubtedly reflects the increasing awareness of these diseases on the part of many clinicians and pathologists, there is also evidence to indicate that the incidence of such infections has increased (10, 17). Several observers have related this rise to the widespread use of various chemotherapeutic agents such as antibiotics, adrenocorticosteroids, and the metabolic antagonists used in cancer and blood dyscrasias (10, 14, 17, 19). Such agents presumably increase susceptibility to the fungi by altering the normal bacterial ecology of the human or by depressing the natural defensive mechanisms of the host. It has become apparent, too, that fungus diseases are not as restricted geographically as previously believed. Accordingly, it is felt that a review of the more important mycotic diseases might be helpful.

This discussion shall be concerned only with those mycotic infections in which systemic dissemination may occur and will not consider the more superficial infections caused by the dermatophytes. In order that a physician consider the possibility of mycotic disease, he must of course be familiar with its manifestations. For this purpose, two aspects of each infection are stressed: 1) the features which suggest its occurrence, including historical, epidemiologic, clinical, radiographic, and laboratory findings; and 2) the steps by which the diagnosis of a specific infection may be established.

### ACTINOMYCOSIS (6, 11, 12)

This is a chronic disease characterized by superficial or visceral granulomatous lesions that suppurate, form abscesses,

and produce multiple draining sinuses. The causative agent in humans is *Actinomyces israeli*, an organism present in the oropharynx of most individuals. Present beliefs concerning the pathogenesis of this disease are that the organism gains entry in 3 primary sites: locally in the oropharynx through trauma, into the pulmonary tree by aspiration from the mouth, or into the intestinal wall locally after being swallowed. From either site it may then extend locally or disseminate hematogenously. Infection occurs then from endogenous organisms and not from exogenous sources.

Clinically, actinomycosis occurs most frequently around the neck, the so-called cervicofacial form of the disease. The next most frequent form is abdominal actinomycosis, while thoracic actinomycosis is less commonly seen. However, isolated lesions may occur in any organ system and in addition infection may spread to give generalized disease.

In cervicofacial actinomycosis, infection often begins around carious or infected teeth, following tooth extraction, or through tonsillar crypts. Soft tissue swelling develops into a hard, uneven appearance with abscesses and sinuses. Osteomyelitis of the mandible is most frequent, but may involve the maxilla, sinuses, or skull to cause meningitis or brain abscess. Infections are not limited to the jaw or surrounding tissues but may present in any portion of the neck or even in the upper mediastinum.

Thoracic actinomycosis occurs primarily by aspiration of organisms from the mouth but may occur secondarily by extension of abdominal disease through the diaphragm. In primary pulmonary actinomycosis the symptoms are not distinctive; as small abscesses develop in the

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lung, mucopurulent sputum appears with some hemoptysis. Due to the continued suppurative process, pleura and bone are often involved so that chest pain is frequent. Contiguous spread may involve the heart or chest wall, giving characteristic sinuses. Chest x-rays in pulmonary actinomycosis show predominately lower lobe involvement (either single or bilateral), in which there may be either massive consolidation or diffuse lobular distribution with small abscesses. Pleural effusions or adhesions and osteomyelitis occur in more advanced cases.

Abdominal actinomycosis usually begins in the ileocecal region and may simulate subacute appendicitis. Masses, or abscesses, may be formed in the cecum, colon, or abdominal cavity. The process may spread to involve the kidneys and the liver, or form sinus tracts either to the lung or exteriorly to the abdominal wall. The vertebral column may also be invaded. X-rays are often not diagnostic; however, when the spinal column is involved, there is usually a periostitis and destruction of the cortex or the vertebral processes in contrast to tuberculosis in which the anterior portion of the vertebral body is usually attacked.

The hematological features are not helpful diagnostically. Leukocytosis and elevated sedimentation rate are to be expected.

The diagnosis may be established by the demonstration of *A. israeli* in pus or exudate from abscesses or sinus tracts. These organisms frequently occur in sulfur granules, which may be found often times immeshed in dressings. When present the granule should be crushed on a slide under a cover glass; they appear as lobulated bodies of intertwined filaments whose ends are typically clubbed. These are not present in all infections, so material should be Gram-stained to demonstrate the delicate Gram-positive branching filaments, which are not acid-fast. Material should be cultured anaerobically. Animals inoculations are not helpful. Serum antibodies have been demonstrated but have not proved of use clinically, nor have skin tests been of value.

Present day treatment of actinomycosis consists of long term therapy with a com-

bination of penicillin and sulfonamides, possibly for 3-6 months. Potassium iodide is also advocated by Smith (15). Excisional therapy and adequate drainage are of distinct value. Other antibiotics may also be effective, including the tetracyclines, streptomycin, erythromycin, and chloramphenicol.

#### NOCARDIOSIS (6, 11, 12)

This is a chronic suppurative infection simulating both actinomycosis and tuberculosis. The causative agent is one of the *Nocardia* species, organisms quite similar to *Actinomyces*. Two forms of infections occur: the *mycetoma*, or abscess and sinus formation of subcutaneous tissues with bone involvement usually of an extremity, and a *primary pulmonary infection* which may disseminate elsewhere. In this country we are concerned primarily only with the pulmonary form. While some 5 different species of *Nocardia* have been described in human infections, most infections are due to *N. asteroides*. *Nocardia* occur naturally in the soil and infection is contracted by direct inoculation or by inhalation into the lung.

In pulmonary nocardiosis, the process may be acute, with cough and fever. The disease may progress to a chronic stage in which the x-ray picture can simulate tuberculosis closely: patchy infiltrative and fibrotic strands with or without cavity formation in upper lobes may occur. Thus both the clinical and x-ray picture may suggest tuberculosis. Since *N. asteroides* is partially acid-fast, the situation may be further confused in the laboratory. Often the disease spreads hematogenously to form subcutaneous abscesses or brain abscess.

In the laboratory nocardiosis may be readily distinguished from actinomycosis and tuberculosis. Granules are rarely present and usually do not show the clubbing of *Actinomyces*. *Nocardia* grows easily on ordinary culture media aerobically, in contrast to the anaerobic *Actinomyces* or to the more fastidious tubercle bacillus. Specific serological and skin tests have not proven useful, unfortunately.

Because of its close clinical similarity to tuberculosis, nocardiosis should always be suspected in any patient with x-rays

typical for tuberculosis but in whom the tuberculin reaction is negative and acid-fast bacilli cannot be found.

The importance of differentiating nocardiosis is further emphasized by the observation that therapy with sulfonamides is effective in curing the disease. Such therapy should be continued for 3-4 months. Surgical drainage or excision is often beneficial.

#### HISTOPLASMOSIS

Histoplasmosis, a granulomatous disease frequently involving the reticuloendothelial system, is caused by *Histoplasma capsulatum*. This disease is endemic in the U. S., particularly in the central Mississippi Valley (including Arkansas), the Ohio Valley, and the Appalachian Mountains. The organism has been widely isolated in soils, particularly from farm outbuildings, chicken coops, silos, storm cellars, and even caves. Infection in man occurs by inhalation or ingestion of the fungus from the ground or contaminated building; therefore small localized epidemics of this disease are common. A history of exposure, travel, or work in known endemic areas may be quite helpful in thinking about the disease.

Three rather distinct types of infection are described: 1) primary pulmonary 2) reinfection pulmonary and 3) progressive or disseminated histoplasmosis.

Primary histoplasmosis is frequent in endemic areas and 95 per cent of infections are asymptomatic. This is a respiratory disease. Those patients with symptoms may have cough, fever, malaise, and some sputum, but recover within a few weeks. Hemoptysis is rare. Chest x-rays show a variety of pictures, including disseminated infiltrates, pneumonic infiltrations, or nodular foci. Hilar adenopathy is common and may suggest primary tuberculosis or a lymphoblastoma. The pulmonary lesions heal slowly and x-rays are often worse than the clinical condition. Some lesions may heal completely without residue, but the characteristic reaction is calcification. This involves both the parenchymal lesion or the hilar nodes, so that a typical Ghon complex forms. Multiple calcifications also occur. Calcification may start within 4 to 6 months

or may require 3 to 5 years. As is apparent, from the x-ray one cannot absolutely differentiate these calcifications from tuberculosis or even coccidioidomycosis. However, in histoplasmosis, the calcified areas tend to be round or oval and uniform in both size and distribution.

The reinfection type of pulmonary histoplasmosis is being recognized with increasing frequency. Furcolow (9) prefers to call this stage chronic progressive or cavitary histoplasmosis. In its early stages it is characterized by apical or subapical pneumonic infiltrations which progress to multiple thick-walled, usually bilateral cavities. Recurrent episodes of cough, weight loss, fever, and sputum with hemoptysis are seen. The disease may spread from one lung to the other and usually progresses to fatal termination with widespread dissemination. These patients obviously are frequently thought to be tuberculous. Indeed, Furcolow (9) found that some 7 per cent of patients in one sanatorium had histoplasmosis, as shown either culturally or serologically. This form of the disease is more common in males over 50.

Disseminated histoplasmosis occurs rather infrequently and in all age groups. Organisms may enter through the skin, the lungs, or ulcerations of the mucous membranes of the oropharynx, larynx, or the intestinal tract. Fever, weight loss, diarrhea, anemia, leukopenia, purpura, and hepatosplenomegaly are common. The lungs and the adrenals (4) are almost routinely invaded and Addisonian adrenal insufficiency may result. Mucous membrane ulcerations are common. Bone and central nervous system involvement may occur but are less prominent than in other mycotic diseases such as blastomycosis, coccidioidomycosis, or cryptococcosis.

In the diagnosis of histoplasmosis, the usual laboratory tests are of value primarily in the disseminated form, where anemia, leukopenia, and an elevated sedimentation rate are found.

Since the *Histoplasma* is a small intracellular organism, direct examination of material is not helpful. Wright's or Giemsa's stain should be done on sputum, scrapings, imprints of biopsied nodes,



bone marrow, or peripheral blood. The Histoplasma appear as cytoplasmic oval, basophilic bodies surrounded by a clear zone. Culture of sputum, gastric washings, blood, bone marrow, or tissues should be made on Sabouraud's agar at 25 degrees and blood agar at 37 degrees. The diagnostic feature is the demonstration of the round thick-walled spore covered with fingerlike projections on Sabouraud's agar. Serologic testing is of value. The complement-fixation procedure is now done with two antigens, the soluble histoplasmin and the intact yeast phase. Serial tests should be done to demonstrate rising titers. A low response early in the disease has been thought to indicate a poor prognosis, while a high titer is usually associated with a self-limited disease. Although almost all infected individuals develop a positive skin test within a few weeks, in disseminated disease it may not be positive or anergy may appear in the terminal state. In general, the histoplasmin skin reaction has the same significance as does the tuberculin test.

Therapy of histoplasmosis has been disappointing to date. Fortunately primary pulmonary infections do not require therapy. For disseminated disease, recent experience with the new fungicidal agent, amphotericin, has given encouraging results. In cavitary disease, pulmonary resection may be helpful.

#### BLASTOMYCOSIS

Blastomycosis (caused by *Blastomyces dermatitidis*) is a suppurative and granulomatous disease with a particular predilection for skin, lungs, and bones. Epidemiologic data indicate that it is more frequent in males, particularly those exposed to the soil or to lumbering activities. Although the fungus has not yet been isolated free in nature, it is felt that human infections probably occur from soil organisms. Arkansas is apparently an endemic area since some 20 cases have been seen at the Medical Center in the past 10 years.

While the disease has been classified into two forms, primary cutaneous and disseminated, there is increasing belief (7) that most cases occur after inhala-

tion into the lungs and subsequent dissemination accounts for the majority of the cutaneous lesions. Direct cutaneous inoculation has been shown, however.

The cutaneous lesions which develop are quite distinctive and almost diagnostic. They are typically papular at onset, then progress to form granulomatous heaped-up lesions, with an elevated verrucous edge around which may be scattered microabscesses teeming with blastomyces. Any portion of the body may be involved.

Systemic blastomycosis begins with pulmonary infection and then spreads throughout the body. Skin and subcutaneous lesions develop and are identical to the lesions of primary cutaneous blastomycosis. Bones are frequently involved, the vertebrae and the ribs most commonly. Liver, spleen, kidneys, prostate, and central nervous system are invaded, but in contrast the intestinal tract is spared.

Several points concerning the clinical features of disseminated blastomycosis may be emphasized. Pleura and ribs may be involved and fistulae may form but this is much rarer than in actinomycosis. Mediastinal involvement is quite frequent, so that mediastinal lymphadenopathy is striking in chest x-rays. Dense lobar infiltration may occur; small irregular cavities are occasionally seen. Calcification is uncommon. Vertebral and rib invasion shows destruction with proliferation and cannot be differentiated by x-ray from actinomycosis. Paravertebral abscesses may simulate tuberculosis.

The routine laboratory tests are not diagnostic. Anemia, leukocytosis, and a fast sedimentation rate are to be expected.

The diagnosis may be established by examination of material from skin lesions or pus from abscesses. The typical round, doubly-contoured, singly-budding yeast-like cells may be seen in mounts made with saline or with 10 per cent KOH. Cultures are made on Sabouraud's agar and blood agar. On Sabouraud's agar the growth is a filamentous whitish colony, later becoming brownish; on blood agar, the yeast phase appears and the organisms appear as they do in human material. Biopsy of skin or other lesions will also demonstrate the budding yeastlike cells in the tissues.

Serologic tests, usually complement-fixation with blastomycin, may be useful as an aid to diagnosis and to prognosis when combined with the skin test reaction. Smith (13) has found that a negative skin test with a positive serologic test frequently has indicated a fatal outcome. In contrast, a positive skin test without or with a positive serologic reaction gives a good prognosis. Cross reactions may occur with histoplasmin and coccidioidin but is maximal for blastomycin. The skin reaction and the serum antibody response do not seem to occur as frequently as in histoplasmosis or coccidioidomycosis.

The recently accepted therapy has been 2-hydroxystilbamidine, given in a total dose of 5 to 15 grams. Precautions must be observed with its use but it is less toxic than stilbamidine. Results have been encouraging but some patients do not respond or relapse later. Presently amphotericin is being evaluated. Since blastomycosis is predominantly a disseminated disease, it is recommended that even those patients with only cutaneous lesions receive systemic therapy.

#### COCCIDIOIDOMYCOSIS

This disease, caused by *Coccidioides immitis*, is endemic in southwestern U. S., including California, Arizona, New Mexico, Nevada, Utah, and Texas. The disease is acquired primarily by inhalation of the fungus from the soil, from which it may readily be isolated. However, infection may occur by local inoculation of the skin or by invasion of the oropharynx. These forms of the disease are not particularly frequent but may give extensive skin lesions or a scrofulodermatous form, either of which may spread to involve the central nervous system or internal organs.

The most common form of the disease is pulmonary infection, which may be either primary or progressive. The large majority of infections are asymptomatic and discovered only in retrospect by skin tests. In primary pulmonary disease, symptoms may vary from those of a non-specific upper respiratory infection to a severe illness with fever, chills, sputum, and pleuritis. Erythema nodosum or multiforme occurs as frequently as 20 per cent of those patients with clinical disease. The x-ray findings include: 1) a

rather indistinct transitory hilar infiltrate; 2) a more distinct pneumonic homogeneous infiltration extending from the hilum to the periphery; 3) nodular lesions in the middle or lower lungs, often single; these may persist for months, then resolve, or develop into thin-walled cavities without much surrounding infiltration. The majority of these cavities heal and may become calcified. Pleural effusion occurs in about 20 per cent of cases.

A more serious form of the disease occurs as a progressive dissemination from a pulmonary lesion, being seen predominantly in males and in pigmented people. Commonly the dissemination occurs shortly after the acute phase but may not appear for months or even years. This is heralded by fever, anorexia, and weight loss as the disease progresses in the lungs and then spreads to bones, skin, liver, spleen, brain, and meninges. Draining subcutaneous sinus tracts may develop. Chest x-rays suggest progression if lesions persist for more than 6 weeks or show spread.

Except for an elevated sedimentation rate, the routine tests are not helpful. Pus, sputum, exudates or other fluids should be examined for the characteristic large, thick-walled spherule filled with endospores. This spherule is also seen in tissue biopsies. In the laboratory it is feasible only to culture on Sabouraud's agar to demonstrate the typical segmented arthrospore formation of the mycelial phase, since the tissue phase or spherule does not form an artificial media. The skin test reaction is an excellent aid in the diagnosis; however, it may be negative in disseminated disease. Serological tests are quite useful, both complement-fixation and precipitin reactions being used. These are usually negative in asymptomatic disease. Precipitins appear first and rise in proportion to the degree of disease but rarely persist longer than 3 months. Complement-fixing antibodies appear later and may persist only a few weeks. If the serologic reactions persist, this is an indication of progressive disease. Accordingly the serologic tests are useful prognostic guides. In cavity disease only some 60 per cent give positive reactions, however.



Treatment to date has not been satisfactory. Agents such as ethyl vanillate, prodigiosin, and sodium caprylate have given questionable benefits. 2-hydroxystilbamidine may be effective. Opinion is divided concerning the management of the cavitary pulmonary lesion; (18) however, it would seem most feasible to resect all such lesions not showing regression in order to prevent dissemination.

#### CRYPTOCOCCOSIS

Cryptococcosis (torulosis) is caused by *Cryptococcus neoformans*, also known as *Torula histolytica*, an organism found to occur in soil. Most infections occur through the respiratory tract, but entry may occur through the skin, nasopharyngeal mucosa, and occasionally through the intestinal tract. Patients with leukemia or lymphoma are unusually susceptible to infections with this fungus.

The most common forms of the disease are pulmonary and central nervous system infections. The symptoms of patients with pulmonary disease are not specific: fever, cough, sputum and occasional hemoptysis occur. Three groups of chest x-ray findings have been described: (5) 1) nodular lesions, either single or multiple, usually with fuzzy borders; 2) disseminated nodules associated with linear infiltrates, which may coalesce to give confluent consolidation; and 3) infiltrative lesions, single or multiple, patchy or linear. The lower lobes are more frequently involved; cavitation may occur in any of the different types. Calcification is not prominent. It is apparent that the pulmonary infection can mimic many diseases, including tuberculosis, other mycotic diseases, tumors, and pneumonia. One point of some help in the differential diagnosis is that mediastinal adenopathy is unusual in cryptococcosis in contrast to actinomycosis, blastomycosis, or coccidioidomycosis.

The central nervous system involvement usually progresses from a pulmonary infection. Characteristically it produces an indolent chronic meningitis, which may wax and wane for years in some patients. There is an inevitable fatal progression. Other organ systems may be involved in disseminated cryptococcosis: skin, liver, spleen, genitourinary tract, adrenals, and

bones. Bones are less frequently invaded than in other mycotic diseases.

The diagnosis is established by examination of pus, exudate, spinal fluid, or tissue for the demonstration of the distinctive organism. *C. neoformans* is a large singly-budding yeastlike cell with a wide refractile gelatinous capsule. The capsule may be seen without special stains but the use of India ink (or Parker polychrome ink) outlines the capsule sharply. Cultures should be made. Biopsies may demonstrate masses of organisms without much tissue reaction; (2) polymorphonuclear reaction is unusual, while giant and mononuclear cells are common. The human host at times shows remarkable little tissue response; this may be related to the apparently inert capsular material around the organism. Serologic and skin test reactions are not helpful.

Therapy has not been uniformly successful in the past. Sulfonamides have been of benefit in some cases of both pulmonary and central nervous system cryptococcosis. Surgery of isolated lesions (lung or skin) may help but do not necessarily prevent dissemination. In meningitis, repeated lumbar punctures help to relieve symptom at times but do not affect the course of the disease. Again, early, but preliminary, results indicate that amphotericin may prove an extremely effective therapeutic agent.

#### CANDIDIASIS

Infections with the yeast *Candida* (or *Monilia*) occur from endogenous organisms, normally present on the skin, on mucous membranes, or in the gastrointestinal tract.

Cutaneous candidiasis may be localized infections such as onychia, paronychia, and intertrigo. Generalized cutaneous lesions may develop and are commonly associated with mucous membrane lesions. Such skin lesions are frequent in people who must keep their hands in water.

Candidiasis of mucous membranes includes thrush, most common in infants or in debilitated elderly individuals. *Candida vulvovaginitis* is found particularly in diabetics and in pregnancy.

Infections of the bronchopulmonary tree are less common than other forms. A primary bronchial form has been described.

Primary pulmonary candidiasis has also been documented. This consists of a patchy bronchopneumonic infection involving several lobes. Chest x-rays may show a fluctuating patchy infiltrate or dense smooth, almost lobar lesions. With multiple lobe involvement, death has been reported.

Diarrhea associated with almost pure cultures of *Candida* in the stools also occurs. Septicemia and endocarditis may be seen in drug addicts, diabetics, or debilitated patients.

Of undoubted importance in the establishment of *Candida* infections are such factors as chemotherapy and the presence of certain diseases. The administration of antibiotics, particularly the broad-spectrum ones, may be accompanied by the development of oral mucous membrane lesions, diarrhea due to *Candida*, and overgrowth of *Candida* in the sputum (14). Other agents, such as steroids and anti-metabolites used for therapy of leukemia, also have been reported to cause increased incidence of candidiasis (10, 19). Certainly many debilitating diseases, such as leukemias, lymphomas, anemias, or prolonged malnutrition predispose to candidiasis.

The diagnosis may be established by the demonstration of the typical yeasts on smears or preferably in culture. For bronchopulmonary disease, repeated sputum cultures should contain *Candida* either in pure culture or in predominance. Serologic and skin tests are not helpful, since they may be found in healthy individuals and absent in patients with proven disease.

Therapy (15) of skin and mucous membrane lesions includes gentian violet, potassium permanganate, potassium iodide, and other local agents. Mycostatin (nystatin) has proven effective for these forms and for gastrointestinal candidiasis. For pulmonary or systemic candidiasis, intravenous gentian violet has been used. Amphotericin has been effective and has the advantage of intravenous administration. In addition, broad-spectrum antibiotics or other agents should be discontinued.

#### SPOROTRICHOSIS

Infections with *Sporotrichum Schenckii* are contracted by contact with contaminated soil, wood, plants, or infected animals.

The characteristic form is a localized lymphatic infection. This begins as a subcutaneous nodule, which then ulcerates and drains. Along the course of the lymphatics draining the involved area there develop multiple nodules, which may also ulcerate. Dissemination is rather rare but may involve the lungs, skin, mucous membranes, bones, or various viscera.

Direct examination of pus or exudate is not of help, since organisms are not found. Cultures should be made on Sabouraud's agar, on which the filamentous white growth is composed of delicate hyphae with the diagnostic grape-like cluster of conidia. While skin test reactions and serum antibodies develop, the necessary materials for these tests is not widely available.

Potassium iodide is extremely effective and should be given for 4 to 6 weeks.

#### MUCORMYCOSIS

Infections with *Mucor* or *Rhizopus* species (both of which are ubiquitous air contaminants) occur almost exclusively as a complication of chronic diseases, such as diabetes, leukemia, carcinoma, multiple myeloma, severe burns, and prolonged diarrhea (1, 3, 10, 17). The organisms have the peculiar ability to invade blood vessels to produce thrombosis. The cases recorded to date have included pulmonary infections, meningoencephalitis following primary invasion of the orbit or the sinuses, and gastrointestinal thromboses with infarction. No specific therapy is available and all recognized cases have been fatal. Diagnosis has been established usually at autopsy with the demonstration of the branching nonseptate mycelial fragments in the tissues.

#### ASPERGILLOSIS

The genus *Aspergillus* is another common air contaminant which may at times become pathogenic. Pulmonary involvement (6, 8, 16) occurs almost exclusively and includes bronchopneumonia, lung abscesses, and solitary lesions (either single or multiple). The clinical picture is ac-





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cordingly not specific. The fungus may be identified in the sputum by culture or by smear. It grows readily on ordinary media and the characteristic feature is the large vesicular conidiophore covered with finger-like projections bearing small spores. No specific therapy is available, but the disease is not necessarily fatal.

#### Bibliography

1. Baker, R. D., Bassert, D. E., and Farrington, E.: Mucormycosis of the Digestive Tract, *Arch. Path.* 63:176, 1957.
2. Baker, R. D. and Haugen, R. K.: Tissue Changes and Tissue Diagnosis in Cryptococcosis, *Am. J. Clin. Path.* 25:14, 1955.
3. Bauer, H., Ajello, L., Adams, E., and Hernandez, D. U.: Cerebral Mucormycosis: Pathogenesis of the Disease, *Am. J. Med.* 18:822, 1955.
4. Binford, C. H.: Histoplasmosis, *Am. J. Clin. Path.* 25:25, 1955.
5. Bonmati, J., Rogers, J. V., and Hopkins, W. A.: Pulmonary Cryptococcosis, *Radiol.* 66:188, 1956.
6. Conant, N. F., Smith, D. T., Baker, R. D., Calloway, J. L., and Martin, D. S.: *Manual of Clinical Mycology*, Philadelphia, 1954, W. B. Saunders Co.
7. Curtis, A. C. and Bocobo, F. C.: North American Blastomycosis, *J. Chr. Dis.* 5:408, 1957.
8. Darke, C. S., Warrack, A. J. N., and Whitehead, J. E. M.: Pulmonary Aspergillosis, *Brit. Med. J.* 1:984, 1957.
9. Furcolow, M. L. and Brasher, C. A.: Chronic Progressive (Cavitary) Histoplasmosis as a Problem in Tuberculosis Sanatoriums, *Am. Rev. Tuberc.* 73:609, 1956.
10. Keye, J. D. and Magee, W. E.: Fungal Diseases in a General Hospital, *Am. J. Clin. Path.* 26:1235, 1956.
11. McQuown, A. L.: Actinomycosis and Nocardiosis, *Am. J. Clin. Path.* 25:2, 1955.
12. Peabody, J. W. and Seabury, J. H.: Actinomycosis and Nocardiosis, *J. Chr. Dis.* 5:374, 1957.
13. Smith, D. T.: Immunologic Types of Blastomycosis: A Report on 40 Cases, *Ann. Int. Med.* 31:463, 1949.
14. Smith, D. T.: The Disturbance of the Usual Bacterial Biology by the Administration of Antibiotics with the Development of New Clinical Syndromes, *Ann. Int. Med.* 37:1135, 1952.
15. Smith, D. T.: Therapy for Pulmonary and Systemic Fungus Disease, *Postgrad. Med.* 20:18, 1956.
16. Stevenson, J. G. and Reid, J. M.: Broncho-Pulmonary Aspergillosis, *Brit. Med. J.* 1:985, 1957.
17. Thorack, R. M.: Fungus Infections Associated with Antibiotics and Steroid Therapy, *Am. J. Med.* 22:872, 1957.
18. Winn, W. A.: Coccidioidomycosis, *J. Chr. Dis.* 5:430, 1957.
19. Zimmerman, L. E.: Fatal Fungus Infections Complicating Other Diseases, *Am. J. Clin. Path.* 25:46, 1955.

## A RESOLUTION IN MEMORY OF

James Isaac Scarborough, M.D.

Whereas: There departed from our midst on October 29, 1957, a prominent member of this Society, Dr. James I. Scarborough, a native Arkansan, well known throughout his own State and the whole Southwest, master surgeon, citizen of distinction and

Whereas: the deceased, trained in a great University under such men as Woodrow Wilson in Politics and History, Henry VanDyke in Literature, Conklin and Dahlgreen in Biological Science, Capps and Abbott in the Classical Humanities, exemplified, in one and the same person that happy union of a knowledge, both broad and balance, and touching any fields, and those cultivated tastes and attitudes which characterize the truly civilized man, and

Whereas: the deceased, superbly grounded in the fundamentals of the surgical art in the school of Halsted and subsequently trained to surgical maturity under John M. T. Finney, Sr., Hugh Young, William and Charles Mayo and others, decided to return to his native state even though this decision involved sacrifice of monetary recompense and professional advancement at the time and possibly later and

Whereas: the deceased served, most

faithfully, and with a skill usually crowned with success, great numbers of the citizens of this state, by whom he is honored and beloved and

Whereas: Dr. Scarborough, although he could often ill afford the time, always stood ready to help younger men of the profession with counsel, discussion and advice, serving gratuitously as Professor of Surgery at the University of Arkansas Medical School for some years under the Deanship of Dr. Vinsonhaler and

Whereas: Dr. Scarborough typified the age old ideal of the professional man as gentleman and scholar who could read his Homer in Greek at sight, who could and did upon occasion write a thank you note in correct and graceful Latin only to give an hour later, perhaps, a penetrating and lucid discussion in extenso of the status gastric surgery; in short a man so well deserving of the old Viennese title: Ein Edelmann Von Gottas Gnaden

BE IT RESOLVED: That these remarks be entered into the minutes of this meeting as an expression of the esteem in which the deceased was and is held by the members of this Society.

S. T. W. Cull, M. D.

Henry G. Hollenberg, M. D.



## A RESOLUTION

On November 8, 1957, God saw fit to take Doctor Ralph Edwin McLochlin from our midst. He was one of our most beloved doctors. To all his patients he was not only their doctor, but their friend. The color, race, or religion made no difference to Doctor Mac. He treated all impartially. He was known to have as many charity patients as private patients.

He was a kind doctor, always patient and willing to give of himself for the benefit of his patients and friends. He lived by the spirit of the Hippocratic oath, both professionally and in civil life. He was a cheerful man and made others cheerful and glad to be with him.

He was President of this Society in the year 1947. He was Chief of Staff of St. Vincents Infirmary two years, from 1950 to 1952. He served on many committees of this Society and always served willingly and well. He was Clinical Professor of Medicine at the Medical School. He was President of the Arkansas Heart Association in 1953, and was one of the founders of the Little Rock Academy of Medicine. He was a Commander in the Medical Corp of the Navy during World War II.

Doctor McLochlin's life was very full then with service to his community, his country, and his God. What more does life offer than great service to one's fellowman? He had great faith beyond the average man and this carried him through his adversity with great courage.

With sorrow, the members of the Pulaski County Medical Society bid farewell to Doctor McLochlin, but they will not forget his example of how a good doctor should live and how a good doctor should die.

Be it therefore resolved that this Society extend to his beloved wife, Mrs. Jeff McLochlin, and son, Pat McLochlin, and other members of his family, our deepest sympathy; and that a copy of this resolution be spread on the minutes of this Society, a copy to be sent to the Arkansas Medical Journal, and that a copy be sent to the bereaved family.

### Resolution Committee

Robert D. Jones, M. D.

Paul L. Mahoney, Sr., M. D.

J. N. Compton, M. D., Chairman

## Histoplasmosis and the Poultry Industry

ALFRED KAHN, JR., M.D.

Histoplasmosis is now being recognized as a very wide spread disease and it is of considerable interest to physicians in Arkansas; this disease is endemic in the Mississippi Valley; secondly, the poultry industry of this state may act as a local source of dissemination of infection. It has been felt by some authorities that fowl are carriers or disseminators of *H. capsulatum* even though they are not made ill by the organism; the fungus is the feces. Under the circumstances if local concentrations of this disease tend to occur in the employes of the chicken industry, then histoplasmosis should be studied by the insurance carriers and the Workmans Compensation Commission.

Histoplasmosis is a rather insidious disease which poses problems of diagnosis. In years past, it was thought the disease was relatively rare and always of great severity. As indicated above, recent surveys have shown the disease to be very widespread and vary in severity from quite mild to fatal. The diagnosis may be difficult to establish at times. The distinguishing characteristics of histoplasmosis are:—a history and physical examination that fit this variable picture, a positive histoplasmin skin test, visualization or culture of organisms, and positive histoplasma complement fixation tests.

A positive histoplasmin skin test, in general, carries the same significance as a tuberculin test. It indicates the individual has encountered *H. capsulatum* in the past but does not prove that a current illness is necessarily due to *H. capsulatum*. However, given an acute illness with fever and some of the following, pulmonary infiltration, cough, weakness, hepatomegaly, splenomegaly, lymphadenopathy, etc., one should suspect histoplasmosis if the skin test is positive or becomes positive; a rising complement fixation titer would further tend to establish the

diagnosis. Absolute diagnosis would rest on culturing *H. capsulatum* from the sputum or other body materials.

The poultry industry in Arkansas might need to take some additional precautions to prevent dissemination of histoplasmosis if it proves that dressing plants or farms specializing in raising fowl have a high rate of this illness among their employes.

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### Medicine vs. Osteopathy

Our society has come to recognize the presence of pressure groups, whose main purpose is to attain some specific selfish aim desired by a minority and without benefit to the majority. Such false accusations have been aimed at the American Medical Association in their fight to preserve the high standard of medical training. A publicity program has been launched to permit the extension of osteopathy in Arkansas. The Arkansas Medical Society is opposed to this program on the grounds that it is not in the best interest of the public.

Basically, medicine's dispute with osteopathy is not organized medicine, a pressure group, wielding its strength against another organization. Rather it is a basic philosophical difference.

The fundamental difference is this: Physicians have striven to employ methods of diagnoses and treatments that seem to offer benefit to the patient only when there is a scientific basis for the method. Physicians would have adopted manipulative methods of treatment long ago if they could justify their use by scientific, controlled methods. Physicians, as impartial scientists, have not been able to prove any benefit from manipulative medicine except possibly in skeletal diseases. Therefore, any concept of treat-



ment built to a large extent on the premise that manipulation is curative is bound to be unacceptable to physicians.

In short, medicine rejects the tenets of osteopathy because they are not on a sound scientific basis. The rejection is not that medicine thinks that osteopaths are a group of "bad fellows." Poor medicine is injurious to the public weal, and medicine that is not on a sound scientific basis is injurious.

It is argued that osteopaths have improved their educational standards and to a certain extent this is true. However, if they are sincere in their desire to be healers then why do they not discard non-scientific methods and accept proven forms of treatment. No educational program of theirs can succeed until they throw out all forms of diagnosis and treatment that is not on a sound scientific basis. In a high healing profession there is no room for anyone who does not have the best possible scientific training, based on continuous research and revised as often as necessary to add new information and to deplete out-moded information.

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## Medicine in the News

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### Mr. Higley vs. The Medical Profession

Veterans' Administrator Harvey Higley, addressing the American Legion convention in September, declared that "a mere decade ago" few would challenge VA care for veterans with non-service-connected disabilities, if they were unable to pay for care and the VA had beds available. "During the past three years," he said, "certain individuals and responsible organizations have opposed hospital benefits for the non-service connected."

"Some medical men, who usually are keenly aware of the need for proper public relations," said Mr. Higley, "now apparently believe that the public no longer is greatly concerned with the veteran and his problems. And so they no longer hesitate to attack medical care for veterans, with particular reference to those having non-service-connected disabilities."

Actually, the medical profession be-

lieves that the public has never been sufficiently informed concerning the veteran and his problems. As stated in the Council on Medical Service pamphlet, **The Trojan Horse** "the facts and philosophy behind the VA program have never been brought clearly to the attention of the American people."

Far from launching an undercover attack on veterans' medical care during a period of public apathy, the House of Delegates of the AMA specifically stated, in 1953, that "Every effort should be made to inform the profession and the public concerning the nature of the problem, the position of the American Medical Association and the reasons on which that position is predicated."

Secondly, the medical profession does not attack and has not attacked "medical care for veterans" generally; it has always upheld the provision of care at federal expense for service-connected conditions. Its opposition has been directed solely at federal financing of care for non-service-connected conditions and the presumption of service-connection without adequate grounds.

Thirdly, although the medical profession's present policy was formally stated in 1952, and restated in 1956, the American Medical Association has "challenged" the legislation authorizing non-service-connected care, not merely for a decade, but since 1925, the year after the World War Veterans Act was passed. That opposition was restated in 1926, 1927, 1928 and 1929. In 1930, the Board of Trustees approved a letter sent by the General Manager to the Veterans' Bureau, protesting against construction of additional hospitals for non-service-connected care; at the June, 1930, session of the House of Delegates, a resolution was adopted recommending that indigent veterans be provided for by state, not federal, agencies.

In January 1933, a statement of AMA policy was submitted to a Joint Committee of Congress which was studying veterans' care. Three AMA representatives appeared before the Committee and went on record as opposing "the provision of free services to veterans whose disabilities are not service-connected." During the period from 1934 to 1951, numerous reso-

lutions were introduced concerning veterans' care, as well as reports on the increasing proportion of non-service-connected care provided by VA hospitals and the increase in VA hospital construction. Some of these resolutions proposed improvements in methods of providing non-service-connected care as authorized by current legislation, but none of them nullified the Association's previously expressed belief that such care was not a proper federal responsibility.

In 1951, the Special Committee on Federal Medical Services was appointed which conducted a year-long study of veterans' care and, in 1952, again stated the medical profession's belief that federal veterans' care should be limited to service-connected cases.

The concern over the medical care program for veterans with nonservice-connected disabilities is not, obviously, a new move on the medical profession's part; it has been expressed almost from the start of the program—not merely “during the past three years.” Nor is it expressed merely because of a belief that the public is no longer interested—an important part of the medical profession's policy is to augment public interest in veterans' medical care.

Mr. Higley did, however, admit again that Congress should clarify and define the extent of federal responsibility for nonservice-connected care—which is, of course, just what the medical profession has been requesting for years.

NOTE: Mr. Higley's resignation was accepted in mid-November, effective date not announced.

### **Disability Checks Under Social Security Near \$10 Million a Month**

Social Security Administration, taking stock of nearly six months operation of its disability payments program, estimates that about 131,000 persons are getting payments. By next July the total on rolls should be around 200,000. SSA notes that average payments to the disabled are \$72.24 a month. This compares with the national average of around \$65 for all other retired.

### **Asks Re-Examination of Vets' Benefits**

The AMA has been informed that the board of directors of the Chamber of Commerce of the United States recently adopted a statement of policy about the problem of the increased number of veterans utilizing federal hospital facilities without having any service-connected disability. The number of such hospital patients (nonservice-connected) far exceeds the number of those who are being treated for war-caused disabilities. The prospective cost of the program is enormous.

The board of directors of the U. S. Chamber is urging the termination of housing, educational, and hospital benefits for veterans with non-service connected disabilities with a view to reducing costs to veteran and non-veteran taxpayers, and placing veterans on the same basis as other citizens.

### **Mills Slated for Chairmanship of Ways and Means Committee**

The important House Ways and Means Committee is scheduled to be headed by Rep. Wilbur Mills (D., Ark.) as a result of the death December 18 of Chairman Jere Cooper (D., Tenn.). Mr. Mills, a lawyer and member of Congress for 18 years, is viewed as an authority on social security and taxation. Held in high regard in Congress, he is often mentioned as the most likely candidate eventually to succeed Speaker Rayburn. He has been active, too, on the policy-making Joint Economic Committee and only recently conducted hearings as chairman of the fiscal policy subcommittee, which went into considerable detail on health, welfare and educational needs in the U. S.

Mr. Cooper's death comes as the Ways and Means Committee prepares for a heavy schedule of hearings, including taxation and the Jenkins-Keogh tax deferment plan for annuities. Also pending before the committee are many bills amending social security, including the Forand bill for hospitalization and surgical services under social security.

Mr. Mills, 48, attended Hendrix College and Harvard Law School. He was admitted to practice before the Supreme Court of Arkansas in 1933, and the U. S. Supreme Court in 1939. In 1934 Mr. Mills



was named county and probate judge of White County. He served for four years, then was elected to the 76th Congress and subsequent Congresses.

### **Fogarty Sees Action on Some Form of Forand Bill Next Year**

Rep. John Fogarty (D., R. I.), chairman of the House subcommittee that handles appropriations for nearly all U. S. health programs, predicts that Congress will vote a program of federal assistance to the aged for their hospital needs in 1958. The major bill on this subject is sponsored by a fellow Rhode Island Democrat, Rep. Aime Forand. It would amend the social security system to permit the aged social security beneficiaries and their dependents and survivors to get free hospitalization and surgical services. The bill has the official support of the 13½ million member AFL-CIO.

### **Changes and Clarifications in Medicare Regulations**

Office for Dependents' Medical Care has made several changes and clarifications in regulations governing Medicare, including:

1. From now on the dependent who is returned to a civilian hospital for a second visit will pay \$1.75 per day (current per diem), instead of again paying the first \$25 of costs. However, this will apply only if the readmission is within 14 days and is for the same condition as the first admission or a direct complication thereof.

2. "Ward care" is for the first time identified as care in a room containing more than four beds. The new regulation has this to say about ward accommodations:

"Ward facilities may be used for pediatric cases whenever this is the normal medical practice. Further, when the attending physician admits his patient to a hospital in which all semi-private accommodations are occupied, care furnished therein shall be considered as authorized care, but the patient should be transferred to a semi-private accommodation as soon as possible. Finally, when the patient is admitted to an otherwise

eligible institution which furnished only ward accommodations, care furnished therein shall be considered authorized care."

3. When a dependent is admitted to a hospital having only private rooms, under the new regulations the government will pay 90 per cent of the daily hospital charges or \$15 per day, whichever is the lesser amount. In such cases the dependent will pay as usual the first \$25 or the per diem charge, whichever is the greater, and in addition the remainder of the charge for the private room.

(The revised regulations are published in the Federal Register for December 6.)

### **Cancer Index**

The National Cancer Institute has just issued a cumulative index of the Journal of the National Cancer Institute for the period 1940-1956. Included are a subject index, with comprehensive cross references, an author index, and a listing of current nomenclature for certain chemical compounds mentioned in the index. This should be a valuable addition to those libraries which have files of the Journal, as well as to research scientists in general, since it gives a rather comprehensive view of a large segment of research in the field of cancer during the 16-year period.

Copies of the index have been sent to all libraries and individuals now receiving the Journal. A limited number of free copies are available. Single copies may be requested from the National Cancer Institute, Attn: Information Officer, Bethesda 14, Md.

The National Cancer Institute has a few copies of some previous issues of the Journal and will fill requests for these issues from scientific libraries and investigators as long as the supply lasts.

### **Professional Liability Committee**

At the first meeting of the American Medical Association, American Hospital Association professional liability committee, held in Chicago recently, Dr. Joseph F. Sadusk, Jr., Oakland, Calif., was elected chairman for one year.

The committee analyzed the material obtained as a result of a two-year study

of medical professional liability conducted by the law department of the American Medical Association, and also considered the changing status of the law with respect to the legal immunity of charitable hospitals.

The committee recommended that:

(a) The AMA law department staff make a detailed study of the hospital insurance program for the past three years in California.

(b) The fourth film in the medicolegal series cover the subject of in-hospital professional liability prevention.

(c) A report be made to the Board of Trustees and the House of Delegates of the American Medical Association and of the American Hospital Association with respect to the purpose and program of the joint committee.

(d) The staff prepare and publish in the publications of the two associations a report reviewing the history, present status, and trends concerning the legal liability of charitable and municipal hospitals in cases involving professional liability.

(e) Joint medical and hospital liaison committees be appointed at the state level with purposes similar to those of the national committee.

### **AEC Lowering Permissible Level of Radiation Exposure**

The Atomic Energy Commission has lowered radiation exposure limits for its facilities and those of its contractors. Most of the limits apply to occupational exposures received by workers in areas where radiation levels are monitored and controlled. Recommendations were made by the National Committee on Radiation Protection and Measurement. That committee pointed out that changes in the accumulated maximum permissible dose "are not the result of positive evidence of damage due to the use of earlier permissible dose levels, but rather are based on the desire to bring the maximum permissible dose into accord with the trends of scientific opinion."

Previously, there was a limit of 15 rems per year; this is retained, but the average over a period of years may not now exceed 5 rems per year. As an example, an

employee in a sensitive area might accumulate a total of 450 rems between ages 18 and 48 under the old limit, but the imposition of the maximum yearly average would not permit him to receive more than 150 rems in the 30 years.

### **Polio Cases off Almost Two-Thirds**

Data collected by the PHS Communicable Disease Center on poliomyelitis shows 5,805 cases during this year's first 48 weeks, compared with 15,036 for a like period in 1956 and 28,842 in 1955.

### **AHA Opposes Forand Bill But Sees Eventual Federal Action**

The American Hospital Association's Board of Trustees is opposing the Forand bill for free hospitalization of the aged but it concedes that federal legislation of some sort will be necessary "to solve the problem satisfactorily." In their policy statement, the trustees raise the prospect of an alternative approach: a revival of the Flanders-Ives proposal for federal and state matching funds to underwrite some of the cost of premiums for voluntary health insurance for the aged and other groups. This would not be under social security.

While admitting that using the social security mechanism to provide hospitalization has certain inherent dangers, the AHA board says that if other voluntary means are not found, the use of social security "may be necessary ultimately."

AHA objections to the bill sponsored by Rep. Aime Forand (D., R. I.) were based on the following: (1) inadequate safeguards against governmental interference with the actual operation of hospitals, (2) eligibility of aged beneficiaries is based on attainment of prescribed ages without regard to employment, thus inviting "a progressive reduction in those age levels with the ultimate possibility of a total program of government-financed hospital care," and (3) the bill makes possible the provision of care for other than health reasons.

### **Medicare Program Marks First Anniversary: \$43 Million in Claims**

The military's medicare program is one year old on December 7. To date, accord-



ing to the Defense Department, the government has paid more than 300,000 physicians' bills amounting to \$22 million, and over 200,000 civilian hospital bills totaling \$21 million. While the combined total is considerably under the estimated \$76 million a year for the program, the Office of Dependent's Medical Care points out that there is a backlog of claims. In all likelihood, the President's budget going to Congress next month will ask for around \$76 million.

Administrative costs, according to ODMC, have been running around 3 per cent of total expenditures, which a spokesman said was just about "on the button." Almost 40 per cent of medicare patients have been maternity cases. The Air Force leads the services with 41 per cent of eligible dependents participating; then the Navy, with 32 per cent; Army, 25 per cent, and Public Health Service, 2 per cent.

#### **Folsom Assistant Urges Restudy of Welfare Programs**

Secretary Folsom's top assistant, Undersecretary John A. Perkins, proposes a wholesale reexamination of welfare programs, in the light of heavy federal spending for defense research and science. Mr. Perkins, talking to the American Public Welfare Association, said he was not in any way challenging the concept of federal grants in aid to help in cases of poverty and want, nor was he suggesting turning back all public assistance responsibility to the states. But he added:

"I am suggesting that the present state of world affairs is a signal that there will inevitably be a review on all levels of government of all governmental services. Their relative significance and the contribution of each to our national leadership—indeed survival—in the Atomic-Space Age will necessarily be studied and restudied."

#### **Doctors Request United Nations Investigation of Humanitarian Principles Violated in Cuba**

Dr. Louis H. Bauer, Secretary General of The World Medical Association, announced that on Tuesday, December 3,

1957, he had requested Secretary General Dag Hammarskjöld to invite the attention of the United Nations' General Assembly to allegations that international humanitarian principles are being violated in the Republic of Cuba. He transmitted to Mr. Hammarskjöld information received and actions taken by The World Medical Association in its efforts to establish the facts relative to these allegations and suggested that the United Nations instigate a non-political investigation to establish the true situation on the rendering of medical care services in Cuba.

The allegations charge that the doctors of Cuba are prevented from carrying out their humanitarian duties to the sick and wounded. If true, this constitutes a violation, not only of The World Medical Association's Declaration of Geneva, but also the International Covenant on Human Rights of the United Nations and the Red Cross Geneva Convention of 1949.

Neither The World Medical Association nor the United Nations can interfere in the internal affairs of any country, but The World Medical Association believes both organizations have the right to know whether or not the international principles of humanitarianism, to which both organizations subscribe, are being violated.

#### **FDA Organizes New Information Service**

A new information service, with articles to be published in the Federal Register, has been set up by Food and Drug Administration. Facts will come largely from letters written by FDA officials in answer to questions raised by the trade. The new service is described by FDA as somewhat similar to the former Trade Correspondence Information Service, discontinued two years ago.

#### **American Medical Association Tells Why It Opposes Forand Bill**

Chicago—The American Medical Association announced today that it will strongly oppose any federal legislation which would provide hospitalization and medical benefits under the Social Security program.

Such benefits under Social Security

have already been proposed under terms of a bill, H. R. 9467, which was introduced by Rep. Aime Forand (D-R. I.) in the closing days of the recently adjourned session of the 85th Congress.

"This proposal is clearly 'socialized medicine' for a segment of the American people," said Dr. David B. Allman, Atlantic City, president of the American Medical Association. "The enactment of this legislation will permit the federal government to withdraw Social Security taxes on a compulsory basis from almost the entire working population and use those taxes to reimburse hospitals and physicians for services rendered to all persons eligible to receive old age and survivors benefits."

It is estimated that there are approximately 12 to 13 million persons in these categories.

"The American Medical Association has repeatedly opposed compulsory health insurance and is unequivocally opposed to this new version," Dr. Allman said.

## **\$27 Million Awarded in NIH Research Grants in November.**

National Institutes of Health reports grants totaling \$27 million made during November to non-federal institutions and individuals to finance research. Earlier in the fiscal year, a total of 3,325 grants with awards totaling \$46 million had been given out, for a total of more than \$73 million between July 1 and October 31.

## **AMA Plans Second Legal Conference in May**

Legal problems currently facing individual physicians and organized medicine will be the primary discussion topics at the second meeting of state and county medical society executive secretaries and attorneys May 9-10 at the Drake Hotel, Chicago. Before the final agenda can be set up, the AMA Law Department hopes that medical societies will send in their suggestions on specific legal subjects that would be of the most interest to them. The first such meeting — also sponsored by the Law Department — was held in April, 1956.

## **Two New AMA Exhibits for '58**

Reducing and accidental poisoning of children are the themes of two new exhibits the American Medical Association is offering to medical societies early in 1958. (1) "You Can Reduce" stresses the importance of using will power in the selection of foods. The exhibit illustrates the basic foods that should be eaten every day, those to "fill up" on and those to "cut down" on. Three dimensional models depict the calorie content of certain basic foods. (2) "Poisoning of Children in the Home" pinpoints eight leading offenders, such as aspirin, kerosene, old medicines and household chemicals. A display of products on a revolving tree-like arrangement also is included in this portable exhibit. Medical society bookings may be arranged through the Bureau of Exhibits after January 1.

## **Study on Use of Anticoagulant Drugs to Prevent Strokes.**

The National Institute of Neurological Diseases and Blindness has awarded \$58,000 in grants to six medical research centers and medical schools to conduct the first cooperative study to evaluate the effectiveness of anticoagulant drugs to prevent strokes. The work is scheduled to be completed in about three years. In announcing the study, Public Health Service pointed out that strokes and cerebral vascular diseases rank next to heart disease and cancer as killers and take an estimated 172,000 lives annually in this country.

## **Resume on Actions of the House of Delegates American Medical Association Eleventh Clinical Meeting Dec. 3-6, 1957 PHILADELPHIA**

PHILADELPHIA, Dec. 6 — Fluoridation of public water supplies, free choice of physician, the Heller Report on organization of the American Medical Association, the Forand Bill providing hospital and surgical benefits for Social Security beneficiaries, guides for occupational health programs covering hospital



employees, distribution of Asian Influenza vaccine and guides for the medical rating of physical impairment were among the variety of subjects acted upon by the House of Delegates at the American Medical Association's Eleventh Clinical Meeting held Dec. 3-6 in Philadelphia.

Dr. Cecil W. Clark of Cameron, Louisiana, was named 1957 General Practitioner of the Year after his selection by a special committee of the Board of Trustees for outstanding community service. Dr. Clark, 33-year-old country doctor who was a medical hero during Hurricane Audrey last June, was present at the meeting to receive the gold medal which goes with the annual award.

Speaking at the opening session on Tuesday, Dr. David B. Allman of Atlantic City, A.M.A. President, called for "more freedom, not less, in America and in the medical profession." Dr. Allman urged the delegates to embark on local action campaigns to enlist full community support in opposition to the Forand Bill, a pending Congressional proposal which would provide hospital and surgical benefits for persons who are receiving or are eligible for Social Security retirement and survivorship payments. The Forand Bill, he said, is "cut from the same cloth" as national compulsory health insurance and "emanates from the same minds."

Total registration at the end of the third day of the meeting, with half a day still to go, had reached 5,375, including 2,562 physician members.

#### Fluoridation of Water

In settling the most controversial issue at the Philadelphia meeting, the House of Delegates approved a joint report of the Council on Drugs and the Council on Foods and Nutrition which endorsed the fluoridation of public water supplies as a safe and practical method of reducing the incidence of dental caries during childhood. The 27-page report on the study which was directed by the House at the Seattle Clinical Meeting one year ago contained these conclusions:

"1. Fluoridation of public water supplies so as to provide the approximate equivalent of 1 ppm of fluorine in drinking water has been established as a meth-

od for reducing dental caries in children up to 10 years of age. In localities with warm climates, or where for other reasons the ingestion of water or other sources of considerable fluorine content is high, a lower concentration of fluoride is advisable. On the basis of the available evidence, it appears that this method decreases the incidence of caries during childhood. The evidence from Colorado Springs indicates as well a reduction in the rate of dental caries up to at least 44 years of age.

"2. No evidence has been found since the 1951 statement by the Councils to prove that continuous ingestion of water containing the equivalent of approximately 1 ppm of fluorine for long periods by large segments of the population is harmful to the general health. Mottling of the tooth enamel (dental fluorosis) associated with this level of fluoridation is minimal. The importance of this mottling is outweighed by the caries-inhibiting effect of the fluoride.

"3. Fluoridation of public water supplies should be regarded as a prophylactic measure for reducing tooth decay at the community level and is applicable where the water supply contains less than the equivalent of 1 ppm of fluorine."

#### Free Choice of Physician

Acting on the issue of free choice in relation to contract practice, the House passed a resolution which reaffirmed approval of previous interpretations of the Principles of Medical Ethics by the Association's Judicial Council and directed that they be called to the attention of all constituent associations and component societies. One Council opinion, issued in 1927 and reaffirmed in Philadelphia, stated that the contract practice of medicine would be determined to be unethical if "a reasonable degree of free choice of physician is denied those cared for in a community where other competent physicians are readily available." The resolution also cited a Council opinion, published in the October 19, 1957, issue of The Journal of the A.M.A., which stated that the basic ethical concepts in both the 1955 and 1957 editions of the Principles of Medical Ethics are identical in spite

of changes in format and wording. This opinion added that "no opinion or report of the Council interpreting these basic principles which were in effect at the time of the revision has been rescinded by the adoption of the 1957 principles."

The 1927 Council report also pointed out that "there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be provided." Judgment of whether or not a contract is ethical, the report said, must be based on the form and terms of the contract as well as the circumstances under which it is made.

In another action related to the issue of free choice, the House adopted a resolution condemning the current attitude and method of operation of the United Mine Workers of America Welfare and Retirement Fund "as tending to lower the quality and availability of medical and hospital care to its beneficiaries." The resolution also called for a broad educational program to inform the general public, including the beneficiaries of the Fund, concerning the benefits to be derived from preservation of the American right to freedom of choice of physicians and hospitals as well as observance of the "Guides to Relationships Between State and County Medical Societies and the UMW Welfare and Retirement Fund" which were adopted by the House last June.

#### The Heller Report

Acting on the report of the Committee to Study the Heller Report on Organization of the American Medical Association, the House reached the following decisions on ten specific recommendations:

1. The office of Vice-President will be continued as an elective office.
2. The offices of Secretary and Treasurer will be combined into one office to be known as Secretary-Treasurer, and that officer will be selected by the Board of Trustees from one of its number.
3. The duties of the Secretary-Treasurer will be separated from those of the Executive Vice-President.
4. The office of General Manager will be discontinued, and the new office of Executive Vice-President will be estab-

lished. The latter, appointed by the Board of Trustees, will be the chief staff executive of the Association.

5. The Council on Medical Education and Hospitals and the Council on Medical Service will continue as standing committees of the House of Delegates, but their administrative direction will be vested in the Executive Vice-President.

6. The voting members of the Board of Trustees will be limited to eleven—the nine elected Trustees, the President and the President-Elect. The Vice-President and the Speaker and Vice-Speaker of the House of Delegates will attend all Board meetings, including executive sessions, with the right of discussion but without the right to vote.

7. The House disapproved of the proposal to elect the Trustees from each of nine physician-population regions.

8. The office of Assistant Secretary will be discontinued, and a new office of Assistant Executive Vice-President will be established.

9. The Committee on Federal Medical Services will be retained as a committee of the Council on Medical Service and will not become a part of the Council on National Defense.

10. The Speaker of the House will appoint a joint and continuing committee of six members, three from the Board of Trustees and three from the House, to redefine the central concept of AMA objectives and basic programs, consider the placing of greater emphasis on scientific activities, take the lead in creating more cohesion among national medical societies and study socio-economic problems.

The accepted recommendations were referred to the Council on Constitution and By-laws with a request to draft appropriate amendments for consideration by the House at the 1958 annual meeting in San Francisco.

#### The Forand Bill

The House condemned the Forand Bill as undesirable legislation, approved the firm position taken in opposition to it and expressed satisfaction that the Board of Trustees has appointed a special task force which is taking action to defeat the bill. In a related action, giving strong



approval to Dr. Allman's address at the opening session, the House adopted a statement which said:

"It is particularly timely that our President has so forcefully sounded the clarification call to the entire profession for emergency action. With complete unity, definition and singleness of purpose, closing of ranks with all age groups and elements of our organization we must at this time stand and be counted. Thus we can exert the physician's influence in every possible direction against invasion of our basic American liberties in the form of proposed legislation alleged to compulsorily insure one segment of the population against health hazards of the expense of all."

#### Health Programs for Hospital Employees

A set of "Guiding Principles for an Occupational Health Program in a Hospital Employee Group" was approved by the House. The guides were developed by a joint committee of the American Medical Association and the American Hospital Association and already had been formally approved by the A.H.A. They include these statements:

"Employees in hospitals are entitled to the same benefits in health maintenance and protection as are industrial employees. Therefore, programs of health services in hospitals should use the techniques of preventive medicine which have been found by experience in industry to approach constructively the health requirements of employees.

"It is essential that employee health programs in hospitals, as in industry, be established as separate functions with independent facilities and personnel. The fact that hospitals are engaged in the care of the sick as their primary function does not alter the necessary organizational plan for an effective occupational health program."

#### Asian Influenza Vaccine

The House considered three resolutions dealing with the Asian influenza immunization program and then adopted a substitute resolution calling attention to "certain inadequacies and confusions in the distribution of vaccines" and directing the Board of Trustees to seek conferences

through existing committees "with a view to establishing a code of practices regulating the future distribution of important therapeutic products, so that the best interest of all the people may be served." The resolution pointed out that the American Medical Association already has a joint committee with the American Pharmaceutical Association and the National Association of Retail Druggists, in addition to a liaison committee with the Drug Manufacturers Association.

#### Medical Rating of Physical Impairment

The House accepted a 115-page "Guide to the Evaluation of Permanent Impairment of the Extremities and Back" which was developed by the Committee on Medical Rating of Physical Impairment as the first in a projected series of guides. The delegates commended the committee for doing "a superb job on this difficult subject" and expressed pleasure that the guides will be published in The Journal of the AMA. The guides are expected to be of particular help to physicians in determining impairment under the new disability benefits program of the Social Security Act.

#### Miscellaneous Actions

Among a wide variety of other actions, the House also:

Directed that a new committee be established in the Council on Industrial Health to study **neurological disorders in industry**;

Noted with approval the establishment of the American Medical Research Foundation, which will initiate and encourage necessary **medical research** and correlate and disseminate the results of studies already under way;

Decided that informational materials which are sent to AMA delegates should also be sent to all **alternate delegates**;

Affirmed that it is within the limits of ethical propriety for physicians to join together as partnerships, associations or other **lawful groups** provided that the ownership and management of the affairs thereof remain in the hands of licensed physicians;

Instructed that the appropriate committee or council should engage in conferences with **third parties** to develop gen-

eral principles and policies which may be applied to the relationship between third parties and members of the medical profession;

Urged state medical society committees on aging and insurance to make continuing studies of **pre-retirement financing of health insurance** for retired persons;

Endorsed a suggestion that the Committee on Federal Medical Services sponsor a national conference on **veterans' medical care** during 1958;

Asked the Board of Trustees to study the feasibility of having the Association finance a thorough investigation of the **Social Security** system by a qualified private agency;

Suggested that physicians and their friends make a vigorous effort to obtain Congressional enactment of the **Jenkins-Keogh Bills**;

Approved the "Suggested Guides to Relationships Between Medical Societies and **Voluntary Health Agencies**";

Strongly recommended that a completely adequate and competent medical department be established in the **Civil Aeronautics Administration** directly responsible to the CAA Administrator, and

Congratulated the General Electric Company for its medical television presentations on the subject of **quackery**.

#### Opening Session

At the Tuesday opening session Rear Admiral B. W. Hogan, Surgeon General of the U. S. Navy, presented the Navy Meritorious Public Service Citation to Dr. Dwight H. Murray of Napa, Calif., immediate past president of the Association. Contributions to the American Medical Education Foundation, for financial aid to the nation's medical schools, were presented by four state medical societies: California, \$143,043.25; Utah \$10,390; New Jersey, \$10,000, and Arizona, \$8,040. The Interstate Post Graduate Medical Association of North America gave \$1,000, and the Illinois State Medical Society announced that it was adding \$10,000 to the \$170,450 presented at the New York meeting last June.

George F. Lull, M.D.  
Secretary-General Manager  
American Medical Association

#### The Month in Washington

**Washington, D. C.**—Eleven years ago, in passing the National Employment Act of 1946, Congress provided for two organizations whose sole function is to promote maximum employment, maximum production and maximum purchasing power. One is Congress' own Joint Economic Committee; the other, the President's Council of Economic Advisers.

The President's Council constantly studies all forces—social as well as financial—that affect employment and production, and before each January 20 makes its report to the President, who in turn utilizes that in drafting his annual economic report to Congress.

At the same time the Congressional Joint Economic Committee is making its own separate studies, holding hearings and preparing a background of information against which to judge the President's economic recommendations when they come before it. The Congressional committee, however, is wholly advisory; it does not itself draft legislation but makes public its annual report before each March.

Although this committee is denied legislating power, its influence often directs the course of legislation. For example, a strong, one-page report from this committee is credited with keeping Congress in session after start of the Korean war and thus preventing a scheduled decrease in taxes.

When it calls in witnesses, the Joint Committee attempts to obtain a broad cross-section of opinion—the liberal along with the conservative. For this reason, recent hearings under sponsorship of the Joint Committee attracted more than casual interest. They brought together conflicting general philosophies and controversial specific issues. In the health-welfare fields, the following were some of the views:

The question of hospitalization for the retired aged through the social security mechanism was debated pro and con by the panelists. Two views:

Prof. Wilbur Cohen, University of Michigan—The former Social Security official maintains that the system can stand



the drain of hospitalization for the aged. It could be done for one half of 1 per cent of taxable income, he argued, and he would raise the latter to the first \$6,600 of income instead of the present \$4,200.

W. Glenn Campbell, American Enterprise Association—Congress should give the medical profession and the insurance industry a chance to work out this problem through traditional methods rather than institute a costly compulsory system with all its attendant damage to the effective practice of medicine.

Two other panelists expressed parallel views on the broader and philosophical aspects of health and welfare:

Secretary Folsom of HEW—The burdens of disease, disability, ignorance and insecurity cannot be escaped by under-investment in health, education and welfare. Such an under-investment would have a costly effect on private charities, budgets of governments, efficiency of industry and the purchasing power of consumers.

Prof. Clarence D. Long, Johns Hopkins University—An expansion of social welfare programs will have a very great stimulating effect on the economy, provided we play down those programs that involve mere charity and emphasize those that help people to help themselves.

On the day of the hearing on health, education and welfare, the panelists agreed that no crash programs in education were called for despite the scientific manpower shortages. Other comments on education:

Professor Paul J. Strayer, Princeton University—Either federal aid will be forthcoming on terms that can be acceptable to the states or we will suffer a general deterioration in the quality of education.

President Howard R. Bowen, Grinnell College—Federal aid should not be granted directly to colleges and universities but through intermediary non-profit corporations controlled by boards of trustees made up of distinguished citizens.

#### **American Hospital Association Expresses its Views on the Forand Bill**

Following is a letter written by President Tol Terrell to members of the Amer-

ican Hospital Association concerning the Forand Bill which is now pending in Congress. Mr. Terrell, who is administrator of Shannon West Texas Memorial Hospital, San Angelo, Texas, expresses the association's policy in this important legislative matter. Attached to his letter, dated December 2, was a Statement on Financing of the Hospital Needs of the Retired Aged as approved by the Board of Trustees of the American Hospital Association.

Dear Member:

We understand that material concerning the Forand Bill (H. R. 9467) and the use of the Social Security mechanism to meet the health needs of the aged has been sent to hospitals and their chiefs of staff throughout the nation.

I am sending this letter to all members of the American Hospital Association so that your Association's position in regard to this may be explained as clearly as I can do it. Administrators may wish to distribute copies of this to their trustees and medical staff and additional copies can be obtained from the Association.

The Association has been extremely active in the exploration of the problem of financing hospital care for the retired aged and for possible solutions. It has been studying the problem calmly, looking at all aspects of it, listening to all points of view, and bringing to it all the statesmanship we could muster. It intends to continue this approach.

Let me give you some of the background.

The report of the independent Commission on Financing of Hospital Care in 1955 spotlighted the special hospital problems of the aged. The Association promptly appointed a special committee. After months of diligent work, a policy statement was approved by the Board of Trustees and referred to the House of Delegates which ratified it in September 1955. This policy supported federal and state matching grants to underwrite, from general tax funds, a portion of the premium for voluntary health insurance for the aged.

Little support for the Association's position was forthcoming and no action was taken. It seemed apparent to the Board

that another look had to be taken at the whole problem. Therefore, another committee was named early in 1957. This committee was given a free hand to formulate a new and more acceptable approach, if one could be found. Once again, representatives of all sorts of groups, with varying points of view, were consulted. Several months after the committee had begun its task, the Forand Bill was introduced in the Congress. The committee quite properly added the Forand Bill to its field of study.

There were various basic positions the Association could take: simple reaffirmation of the 1955 policy; complete hands-off; support of legislation to force improvement of insurance coverage for the aged group, and, finally, support of the Social Security mechanism as the mechanism through which hospital services for the retired aged should be funded.

Your Board of Trustees has just finished an exhaustive discussion of this problem. It has approved a statement which is appended to this letter and also has approved the appointment of a special committee of hospital trustees to assist in formulation of a policy.

I believe the Association must oppose those things it deems not in the public interest. I believe it has an obligation to propose alternatives. The Association's influence is directly related to its adherence to this philosophy that opposition alone is not enough.

We are mindful of the gravity of the problem and of the importance of the position finally taken by the Association. Being so mindful, we intend to pursue our established policy of seeking, as calmly and as wisely as we can, a solution which is in the best interests of the patients our hospitals serve.

We welcome the comments and the assistance of all of our membership in this matter.

Tol Terrell  
President

## STATEMENT ON FINANCING OF THE HOSPITAL NEEDS OF THE RETIRED AGED

Approved by the Board of Trustees  
November 27, 1957

Studies by special committees of the American Hospital Association during the past three years have confirmed that retired aged persons face a serious problem in financing their hospital care. This burden contributes to the indigency and pauperization of many such persons.

Two years ago, the Association concluded after careful study that federal funds would be required if a satisfactory solution were to be found. As a result, in September, 1955 the House of Delegates adopted a policy of federal and state matching grants to underwrite, from general tax funds, a portion of the premium for voluntary health insurance for the aged.

Because of lack of support for this approach and because the problem was continuously growing in dimensions, the Association appointed a new committee early in 1957 to study the entire problem and all possible solutions.

This committee concluded that, although federal participation was still necessary, the federal-state subsidy approach was no longer a satisfactory one for the following reasons:

- a. The improbability of obtaining enough federal and state funds to meet the problem in any significant degree due to present budgetary restrictions of the federal government and opposition to the establishment of any new federal grant problems.
- b. The probability that this approach would necessitate the imposition of a means test, unacceptable to many.
- c. The real possibility that the program would lead to interference with hospital operations.

The American Hospital Association believes that the Forand Bill (H. R. 9467) is not a suitable solution to the problem of financing the hospital needs of the retired aged. Among its major objections to the Forand Bill are the following:



a. Eligibility of aged beneficiaries is based on attainment of prescribed ages without regard to their employment status and thus invites a progressive reduction of these age levels with the ultimate possibility of a total program of government-financed hospital care.

b. The bill makes possible the provision of care for other than health reasons.

c. The bill provides inadequate safeguards against governmental interference with the actual operation of hospitals. Such interference would most likely hamper evolution of patterns of hospital service to the detriment of patient care.

In summary:

1. The American Hospital Association is convinced that retired aged persons face a pressing problem in financing their hospital care.

2. It believes that federal legislation will be necessary to solve the problem satisfactorily. It has, however, serious misgivings with respect to the use of compulsory health insurance for financing hospital care even for the retired aged.

3. It believes that all possible solutions must be vigorously explored including methods by which the dangers inherent in the Social Security approach can be avoided.

4. It believes that the use of Social Security to provide the mechanism to assist in the solution of the problem of financing the hospital needs of the retired aged may be necessary ultimately. However, it believes that every realistic effort should first be made to meet these needs promptly through other mechanisms utilizing existing systems of voluntary prepayment.

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## ANNOUNCEMENTS

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The following one-day Seminar on gastroenterology will be held in Camden, Arkansas, Sunday, March 2, 1958. It will be conducted by the University of Arkansas School of Medicine and 7 hours formal credit (Category I) will be given to members of the American Academy of General Practice for attendance.

Bob Robins

### Participants

Robert Abernathy, M. D., Assistant Professor of Medicine, (Infectious Disease).

Howard Barnhard, M. D., Assistant Professor of Radiology.

James Growden, M. D., Professor and Head of the Department of Surgery.

Ben Heller, M. D., Professor of Medicine, (Electrolyte and Metabolic Disease).

Kerrison Juniper, Jr., M. D., Assistant Professor of Medicine, (Gastroenterology).

Jerome Levy, M. D., Clinical Professor of Medicine, (Gastroenterology).

9:00-10:30 PANEL DISCUSSION: Management of "Peptic" Ulcer. Moderator, Dr. Juniper, Drs. Levy, Growden, Heller and Barnhard.

10:30-10:45 Break

10:45-12:00 SYMPOSIUM ON ESOPHAGEAL DISEASE: Drs. Growden, Levy, Juniper and Barnhard.

12:00- 2:00 LUNCHEON PANEL DISCUSSION: Management of Liver Failure. Moderator, Dr. Heller, Drs. Levy, Juniper, Growden and Abernathy.

2:00- 2:45 SYMPOSIUM ON ACUTE DIARRHEAL DISEASES: Drs. Levy, Abernathy, Juniper, Heller and Growden.

2:45- 3:00 BREAK

3:00- 4:00 SYMPOSIUM ON ACUTE DIARRHEAL DISEASES, Continued.

### Preview of the 1958 MLA Meeting

The fifty-seventh annual meeting of the Medical Library Association will be held in Rochester, Minnesota from June 2 through June 6, 1958 with headquarters at the Hotel Kahler. The theme of the Rochester meeting will be "Advances in Medical Library Practice." Mr. Thomas E. Keys, Librarian of the Mayo Clinic is Convention Chairman and letters of inquiry should be addressed to him.

## AMA Schedules Rural Health Conference March 6-8

Changing patterns in nutrition, health costs, medical care, dental health and safety will serve as the focal point for discussion at the 13th national Conference on Rural Health to be held March 6-8 at the Hotel Heidelberg, Jackson, Miss.

## FIRST OKLAHOMA COLLOQUY ON ADVANCES IN MEDICINE FLUID, ELECTROLYTE AND NUTRITIONAL BALANCE

February 6, 7, and 8  
1958

## Tenth Annual Institute In Psychiatry and Neurology

The Tenth Annual Institute in Psychiatry and Neurology will be held at the Veterans Administration Hospital, North Little Rock, Arkansas on February 27 and 28, 1958. Participants will include the following:

Dr. Franz Alexander, Chicago, Illinois; Dr. Daniel Blain, Washington, D. C.; Dr. Walter Freeman, Los Altos, California; Dr. Edwin F. Gildea, St. Louis, Missouri; Dr. and Mrs. Jacob L. Moreno, Beacon, New York; Dr. William Rottersman, Atlanta, Georgia; Dr. Henry Schwartz, St. Louis, Missouri; Dr. Harvey J. Tompkins, New York, New York; Dr. W. R. Alstadt, Little Rock, Arkansas; Mrs. Helen H. Perlman, Chicago, Illinois; Dr. Harry Solomon, President, American Psychiatric Association, Boston, Massachusetts; Dr. Philip Thorek, Chicago, Illinois; Dr. Fillmore H. Sanford, Austin, Texas.

This institute is being planned as a special occasion with the anniversary theme being stressed throughout. Almost all of those who participated in the First Annual Institute, which was held here on February 28 and March 1, 1949, will return for the occasion.

Dr. Thorek will present the principal address at the dinner session Thursday evening, February 27. On Wednesday, February 26, there will be workshops in clinical psychology, psychiatric social work, and psychiatric nursing.

Dr. Harold W. Sterling, Manager of the hospital, cordially invites interested pro-

fessional personnel to attend this institute, registration being without charge.

## Trauma Course

The second annual Post Graduate Course in FRACTURES AND OTHER TRAUMA will be given by the Chicago Committee on Trauma of the American College of Surgeons, for four days from Wednesday, April 16 through Saturday, April 19, at the John B. Murphy Memorial Auditorium, 40 East Erie Street, Chicago.

# Obituary

Dr. E. B. Jones died at his home in Hartford, Ark., December 4, 1957, at the age of 97. Dr. Jones, who came to Hartford in 1902, had practiced medicine for 70 years before his retirement in 1956. At the time of his retirement, he was the oldest practicing physician in Arkansas. A graduate of Vanderbilt University in Nashville, Tenn., he also attended the College of Physicians and Surgeons in St. Louis, Mo. Dr. Jones was born in Huntsville, Ark. He was a member of the Jones Memorial Methodist Church, which was named in his honor, and belonged to the Masonic Lodge. He is survived by many nieces and nephews.

## PERSONALS AND NEWS ITEMS

Dr. J. P. Price, Monticello, has been elected president of the Arkansas A&M College Alumni Association.

One of the featured speakers at the annual convention of the Arkansas Practical Nurses Association held in Little Rock November 18th and 19th was Dr. T. D. Brown, president of the Arkansas Medical Society.

Dr. F. Walter Carruthers, Little Rock orthopedic surgeon, was guest speaker at two major medical meetings recently. He took part on the program of the Pan-



Pacific Surgical Association in Honolulu from November 14-22 and then spoke at a post-surgical meeting held in Tokyo, November 25-December 2 under auspices of the Japanese Surgical Society. After leaving Tokyo, Dr. and Mrs. Carruthers visited Hong Kong, Manila, Wake Island and Guam returning to Little Rock December 15.

The newly created Traffic Safety Committee of the Arkansas Medical Society has named as its chairman, **Dr. C. Lewis Hyatt** of Monticello. The eleven-man committee composed of a doctor from each of the ten districts over the state, is formulating plans to create a safety program which will help bring to a halt the tremendous increases in traffic deaths and injuries in Arkansas. This program was recently undertaken by the American Medical Association.

A signal honor has been given Dr. Thomas Johnston, Little Rock. He has been made Chairman of the Section of Allergy of the Southern Medical Association. He is the only Arkansan currently holding this office in any of the twenty-two sections of the Southern Medical Association.

**Dr. Harold Richard Hipp** has been elected as a Fellow of the American College of Physicians.

The Southern Medical Association held the largest meeting of its fifty-one-year history in Miami Beach, Florida, November 11-14. 3,133 physicians registered as part of a total registration of 5,761.

**Dr. Fount Richardson** of Fayetteville, Arkansas was re-elected Chairman of the Council of the organization. **Dr. Milford O. Rouse** of Dallas, Texas, was named president-elect.

**Dr. James D. Mashburn** of Fayetteville has been elected the first president of the Jeff Banks Memorial Student Aid Foundation. **Dr. Willard Pruitt** of Camden was elected vice president and **Dr. James W. Headstream** of Little Rock, secretary-treasurer. Contributions totaling \$6,679 have been received thus far.

**Dr. T. C. Panos**, professor of pediatrics at the University of Texas Medical Branch at Galveston, has accepted an appointment as head of the Department of Pediatrics at the University of Arkansas School of Medicine.

The newly-elected chief of staff of Crittenden Memorial Hospital is **Dr. Gilbert D. Jay, III**, of West Memphis. Others elected were **Dr. William J. Wright** of Earle, vice president, and **D. Milton Lubin** of Turrell, secretary.

**Dr. James T. Wortham**, formerly of the University of Arkansas School of Medicine and more recently serving in the United States Navy, plans to return to Little Rock and establish a private practice beginning January 2nd.

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## *Proceedings of Societies*

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The Ouachita County Medical Society met in regular monthly dinner session Thursday evening, December 12, 1957, at 7 p. m. at the Camden Hotel. Mr. John Rowland of Little Rock spoke on "The Past, Present and Future of Blue Cross-Blue Shield." Newly elected officers are Dr. N. G. Partee, Camden, president; Dr. James W. Hawley, Camden, vice president; Dr. R. B. Robins, Camden, secretary Dr. Henry Hearnberger, Stephens, alternate delegate.

New officers elected by the Boone County Medical Society are Dr. David Russell of Jasper, president, and Dr. G. Allen Robinson of Harrison, secretary-treasurer. Dr. Jean Gladden, Harrison, was elected chief of staff of the Boone County Hospital.

Dr. John Gray of Jonesboro has been elected president of the Craighead-Poinsett Medical Society for 1958. Other officers named for the coming year are Dr. Paul Ledbetter of Jonesboro, president-elect; Dr. K. B. Kennedy of Trumann, member of the Board of Censors and Dr. J. H. McCurry of Cash, secretary.

Dr. Hoyt Choate has taken office as president of the Pulaski County Medical Society. Other officers for 1958 are Dr. Robert D. Jones, president-elect; Dr. Gordon P. Oates, vice president; Dr. John A. Harrel, treasurer; Dr. John G. Watkins, treasurer-elect and Dr. Joe D. Calhoun, recording secretary.

Officers elected by the Jefferson County Medical Society are Dr. T. E. Townsend, president, Dr. Calvin R. Simmons, vice president and Dr. R. Frank Bryant, secretary-treasurer.

Hot Springs-Garland County Medical Society recently elected new officers also. They are Dr. Robert Atkinson, president, Dr. George Footio, vice president and Dr. W. R. Lee, secretary-treasurer.

The fall meeting of the Third Councilor Medical Society was held at the Rusher Hotel in Brinkley November 14 with Dr. J. P. Williams of Brinkley, president, presiding. The following program was presented: "X-ray Aspect of Surgical Diseases of the Chest" by Dr. Gwin Robbins, Memphis; "X-ray Aspect of Medical Diseases of the Chest" by Dr. Arthur Bellott, Memphis; and a panel discussion led by Dr. Pervis Milnor, Memphis. "Outlet Pathology" by Dr. Deane Wallace, Little Rock; "Urological Complications of Abdominal Surgery" by Dr. James Headstream, Little Rock.

Modern concepts of ovarian surgery was discussed at a meeting of the Arkansas Chapter of the American College of Surgeons, November 23, 1957, at the University of Arkansas Medical Center. A panel headed by Dr. Willis E. Brown, professor and head of the Obstetrics-Gynecology Dept. at the Medical Center, presented the discussion, which dealt primarily with when ovarian operations should and should not be performed. Members of the panel included Drs. Howard Schwander of Little Rock, Martin C. Hawkins of Searcy, Eugene T. Ellison of Texarkana and William M. Eisele of Hot Springs. "The Problems of Over-transfusion in Massive Hemorrhage" was discussed by Dr. John W. Downs of Little

Rock. At the afternoon session, Dr. Sam G. Jameson of El Dorado presented a program on Pediatric Urology. New officers elected are Dr. Frederick Krock of Fort Smith, president; Dr. Gilbert Dean of Little Rock, secretary-treasurer; and Dr. Robert Watson of Little Rock, vice president.

The 9th Councilor District Medical Society met at Springdale, Arkansas, December 6, 1957, for a dinner meeting, with Dr. C. D. Gunter, president, presiding. Thirty physicians were present. Speakers for the evening were Dr. Albert S. Koenig of Fort Smith, Dr. Kenneth A. Siler of Rogers. It was decided that the June, 1958, meeting be held at the A. Q. Chicken House, Springdale, and the ladies would be invited.

## *Woman's Auxiliary*

The nominating committee for state auxiliary consists of Mrs. L. Gardner, Russellville, chairman; Mrs. Lon Reed, Hot Springs; Mrs. R. C. Dickinson, Horatio; Mrs. John Hundley, Little Rock; and Mrs. L. A. Whittaker, Jr., Fort Smith.

San Francisco will be the locale of the 1958 national convention, June 23 to 27. Headquarters for the Auxiliary will be at the Hotel Fairmont. Details as to program, hotel reservations, and general information will be available shortly.

### **Around the State by Counties**

**Garland:** William Hughes, assistant director of information at the University of Arkansas Medical Center, was guest speaker at Garland County Medical Auxiliary in November. The meeting was held at the home of Mrs. R. B. Burch, with Mrs. Lon Reed, Mrs. James C. McMahan, and Mrs. Robert F. McCracy as co-hostesses. "Safety" was the subject of a talk given to auxiliary members in October by Judge M. C. Lewis, Jr., of Hot Springs.



**Jefferson:** Fall and winter fashions were featured in the eleventh annual Fashion Show-Tea presented in October at the Hotel Pines in Pine Bluff by Jefferson County Medical Auxiliary. Mrs. Howard S. Stern served as Fashion Show chairman, and Mrs. Herbert L. Wineland was chairman of the tea. Proceeds from the "Harvest of Fall Fashions" went to Davis Hospital Charity Fund. Mrs. Arthur Fowler, Jr., is president of Jefferson County Auxiliary this year.

**Pulaski:** "It's in the Bag" was the title of Mrs. Jack Kennedy's talk to members of Pulaski County Medical Auxiliary at the October meeting. Mrs. William G. Cooper is Pulaski County President.

**Sebastian:** Sebastian County Medical Auxiliary started its year's program with a coffee at the home of the president, Mrs. Marlin Hoge, in October. Auxiliary members were also dinner guests of the medical society in October. Mrs. Jack Kennedy and Mrs. Gordon Oates were special guests at the November meeting, which was a luncheon at the home of Mrs. L. A. Whittaker, Jr. Mrs. Jeff Southard and Mrs. C. F. Boulden served as co-hostesses. Mrs. Harry Dietrich reviewed the book, "Snowflake" by Paul Gallico at the December meeting, which was a coffee at the home of Mrs. Ralph Crigler.

**Sevier-Polk:** Four meetings this year, with emphasis on "Today's Health" and mental health, will make up the year's program for Sevier-Polk County Medical Auxiliary. The October meeting was a joint meeting with Bowie-Miller in Texarkana; the December meeting was held in Mena; DeQueen will be host for the Doctor's Day meeting in March, and the post convention meeting will be held in Mena. Mrs. Wayne Pullen of DeQueen is president this year.

**Union:** "A Wee Bit of Paris" was the theme presented to members and guests of Union County Medical Auxiliary at a buffet luncheon and style show at the El Dorado Golf and Country Club at the October meeting. Guests came from Columbia and Ouachita counties, as well as Un-

ion. Mrs. Austin Doren is president of Union County Auxiliary this year. Mrs. J. Frank Clark, public relations chairman, Mrs. Garland Murphy, and Mrs. Berry Moore made up the planning committee for the meeting.

**Washington:** Washington County Auxiliary served as host to Mrs. Jack Kennedy and Mrs. Gordon Oates at a luncheon meeting in October.

The mid-year meeting of the Executive Board of the Woman's Auxiliary to the Arkansas Medical Society was held Wednesday, January 8, 1958, in Little Rock at the University of Arkansas Medical Center. The business meeting was followed by luncheon in the cafeteria. Mrs. W. G. Cooper, president of Pulaski County Auxiliary, served as hostess for the meeting.

The Hempstead County Medical Auxiliary had a joint meeting in November with the Howard County Medical Auxiliary in Nashville. The luncheon meeting honored Mrs. Jack Kennedy of Arkadelphia, who is state president. Following the luncheon, the ladies were invited to the home of Mrs. Edwin Dildy to hear a talk on "News of State Work" brought by Mrs. Kennedy.

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## BOOK REVIEWS

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**REGULATION AND MODE OF ACTION OF THYROID HORMONES.** CIBA. Edited by G. E. W. Wolstenholme and Elaine C. P. Miller. Little, Brown & Co. Boston. Pp. 310. 1957. \$8.50.

The CIBA Foundation has published another excellent book. This short symposium of approximately 300 pages is filled with interesting information on recent physiological research on the thyroid gland. Top investigators have participated. The writing style is pleasant. As usual, there are excellent discussions. This book will not interest the general physician very much but should be of great interest to the investigator and the internist. The rapidity of development of endocrine research makes a symposium of this type, which reviews research material, a most important function. This book is highly recommended to the limited group of folks interested in thyroid research.

**SURGERY IN WORLD WAR II, Vol. II; General Surgery:** John Boyd Coates, Jr., M.D.; Editor-in-Chief; Michael E. de Bakey, M.D., Editor for General Surgery; Pp. 417; Illustrated, 1956. Superintendent of Documents, U. D. Government Printing Office, Washington, D. C., \$4.25.

One of a large series of reports from the Medical Department of the U. S. Army is presented. This particular volume reads more like a text on ward rounds than a historical record. Cases from the fighting in North Africa are the bases of this book and Dr. S. B. Hays, The Surgeon General, has chosen the records from this sector because they are unusually complete. One of the Contributing Editors quotes a visiting professor of surgery from Norway to show the high caliber of technique maintained even in camp. "You are holding to the standards of university clinic surgery under fire and in tents with mud floors."

The text records case histories and complete data on what was done, as well as the statistical studies that can be obtained from over three thousand complete records. There is valuable information for future surgeons in future wars herein.

## TUBERCULOSIS ABSTRACTS

Sponsored by

The Arkansas Tuberculosis Association

### Treatment of Tuberculosis in the Elderly Individual

By Thomas J. Kinsella, M.D., Geriatrics, June, 1957.

Many changes have occurred in the clinical and epidemiologic picture of tuberculosis in the past twenty-five years, one of which has been a change in age distribution. A quarter of a century ago, tuberculosis was considered to be a disease of young people, with the older age groups relatively immune or having it in a rather benign chronic form. They were the true consumptives who never died of their disease and never recovered from it. Frequently not much attention was paid to the elderly individual, even though he had some trouble with a chronic cough until a grandchild or great grandchild died of tuberculosis meningitis, thus establishing the diagnosis.

*The Shift in Age Group.*—At Glen Lake Sanatorium (Minn.) in 1925 the typical patient admitted was a young woman in her late teens or 20's. The situation today is totally different. The typical admission patient is a man, 50 or above, who may be a

drifter or an alcoholic. Likewise, in 1925 at Glen Lake only nine per cent were the age of 50; in 1955, over 40 per cent were in this age group. Somewhat comparable figures come from nearby sanatoriums.

We must realize, of course, that many of the individuals who are now being admitted to the tuberculosis sanatoria with active tuberculosis belong to the same generation as the patients who were being admitted to the institutions some twenty-five to thirty years ago. Did they receive their contamination long ago and only now develop their active disease, or did they escape at that time to be contaminated at a subsequent date? The clinical picture, in some at least, would seem to suggest a more recent exposure, for there is frequently little to show for any old disease. In 1925, there was much discussion of preventoria and institutions for the treatment of younger individuals. The emphasis now is on institutions for elderly individuals. The numbers of older individuals in our population have increased and we should expect more of them in public institutions.

*Where is Tuberculosis Found?* — The first and most important thing that the average physician must realize is that pulmonary tuberculosis is a disease of the human race and is present among all ages, races, and in all strata of society. A generation ago, when the disease was more prevalent, all physicians were constantly confronted with it. Nowadays, with its low incidence and its low mortality, it is frequently overlooked in a differential diagnosis. The younger generation of physicians has been taught to fear the condition and has been shielded from any first-hand knowledge of it. Is it any wonder, then, that the condition is frequently overlooked?

Tuberculosis in the aged may present itself in a typical and easily recognized fashion. It is perhaps a little more likely to be masked by or confused with chronic bronchitis, bronchiectasis, pulmonary abscess, pulmonary infarcts, bronchogenic carcinoma, atypical pneumonia, virus pneumonia, or various other conditions. Tuberculosis is where you find it, and it may only be discovered by intensive search. Even when the physician is suspicious and submits a sputum specimen to the average laboratory, the specimen is frequently sent on to the State Board of Health for culture,



thus delaying the diagnosis for an extra six to eight weeks.

*Diagnosis.*—A high index of suspicion of tuberculosis is of great value to the physician when he confronts a patient with chest complaints and particularly when the patient is an elderly individual who may present a ready-made diagnosis. The diagnosis of asthma, bronchitis, bronchiectasis, pneumonia, virus pneumonia and unresolved pneumonia, hay fever, allergy, emphysema, smoker's cough, or cigarette cough may not only hide a multitude of sins but millions of tubercle bacilli. The problem is the more difficult when the patient actually has two or three conditions at one time, such as carcinoma and tuberculosis, bronchiectasis and tuberculosis, asthma and tuberculosis, and so on. It may be that the presence of tuberculosis can be ruled out or confirmed only by a careful history, physical examination, X-ray studies, and repeated laboratory studies.

The prevalence of tuberculosis among patients with diabetes, gastric resections, chronic alcoholism, insanity, and other debilitating conditions is sometimes not properly appreciated by physicians. When there is a known history of exposure to the disease it is a mistake to check the individual once or perhaps twice over a period of a few months and overlook the fact that clinical disease may be slow to develop or may not become evident until some debilitating process lowers the resistance.

Another common mistake lies in assuming that a few fibroid or calcified deposits in one apex have no clinical significance. This is especially true when such findings are recorded on routine survey films, since the patient is entirely asymptomatic. Even more pernicious is the categorical statement by a roentgenologist that a certain lesion is of no clinical significance. Activity or communicability of tuberculosis cannot be accurately determined from X-ray studies alone. This requires careful clinical and laboratory study, often over long periods.

The course of pulmonary tuberculosis in the elderly individual varies widely. There are some who present acute exudative disease which progresses rapidly and apparently is of very recent development. Many others have chronic disease which smolders

at a very slow rate with only intermittent spells of activity and liberation of tubercle bacilli. The same manifestations may be observed when the patient is under treatment.

*Treatment.* — Fundamentally the treatment of pulmonary tuberculosis in the aged is much the same as in other age groups, but with certain exceptions. Isolation and treatment in a sanatorium are best for all concerned. Before the advent of chemotherapy, much reliance was placed on bed rest, but it was found that prolonged intensive bed-rest treatment was not well tolerated, either mentally or physically. Complications in the form of decubitus ulcers, nutritional disturbances, contractures, hypostasis, and thrombotic phenomena occurred too commonly. A more modern approach, is a program of intensive therapy with two of the drugs, streptomycin, isonicotinic acid hydrazide (INH), and para-aminosalicylic acid (PAS), using only a moderate restriction of physical activities. Under such a program, many individuals, of advanced years, handle their tuberculosis very well. In this category, the advantages of prolonged chemotherapy cannot be overrated, for many individuals are left with sufficient residual disease to render the danger of relapse without drug therapy very real.

*Collapse Therapy.*—Collapse therapy of various types, such as artificial pneumothorax, extrapleural pneumothorax, plombage, or limited thoracoplasty, which have been largely abandoned in the treatment of tuberculosis in younger individuals, could perhaps find a use with chemotherapy for the possible closure of cavity, control of bleeding, or other symptoms in elderly individuals among whom the more definitive resection procedures would be unduly hazardous.

*Resection and Other Thoracic Surgery.*—Modern chemotherapy, blood transfusions, and modern anesthesia have now made it possible to carry out many major surgical procedures on patients of advanced years. It is definitely physiologic age and associated conditions, rather than attained age, which is important.

There are many factors, that affect the surgical risk in older patients and each factor must be carefully studied in each indi-

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## Urticarial Diseases\*\*

STEPHEN ROTHMAN, M.D.\*

In the narrower sense urticarial diseases are those conditions in which urticarial wheals appear on skin or mucous membranes. These wheals are quite unique lesions, their distinguishing features being that they are porcelain-white when they are fully developed and that they are of short duration. After persisting for a few hours, they disappear leaving no trace. Wheals always are flatly elevated palpable lesions, and if fully developed, they are surrounded by an erythematous flare the diameter of which is usually several times that of the wheal. The size and shape are not characteristic. They can be as small as a pinhead or several centimeters in the longer diameter. Their shape depends on the type and shape of the stimulus and as you know in the case of factitial urticaria letter-shaped wheals can be artificially produced on the skin. Intense pruritus is also a characteristic feature of urticarial wheals. However, as we shall see, there are wheals which do not itch.

The pathogenesis of urticarial wheals was studied most successfully by Thomas Lewis in London in the 1920's. He demonstrated that the first step in the development of a wheal is a local dilatation of the superficial minute cutaneous vessels exactly restricted to the area where the offending agent damages the skin. This local vasodilatation is clinically recognizable as a red macule and is soon followed by the second step which consists of an increase in permeability of the locally dilated blood vessels so that plasma

can exude from them. The blood plasma extravasates into the tough connective tissue of the papillary and subpapillary layers and if sufficient amount of plasma accumulates it exerts so much pressure on the originally dilated capillaries that all the blood is pressed out of them and the wheal breaks out. The third step is the development of the flare. These three steps then form the triple response of Thomas Lewis.

The local vasodilatation and the local increase in vascular permeability are local vascular phenomena and can be elicited in denervated limbs after complete degeneration of the mixed nerve with the same intensity as in areas with intact innervation. However, the red flare is the result of a so-called axon reflex (or local reflex) of posterior root fibers. These fibers have widely ramifying axons in contact with capillary vessels in the skin. When one or several of the axon rami are hit by urticariogenic stimulus, an impulse ascends to the highest point of ramification and then reverses itself in a centrifugal direction descending along the rami of the same axon and inducing vasodilatation of the arched cutaneous arterioles. All this has been proved many times and in many ways by physiological experimentation. More than that, we could show in our laboratory that these highest points of ramification are situated in the mid-corium. What I consider a rather important clinical point is that the formation of the wheal itself is entirely independent of the nervous system, and, therefore, on physiological grounds I doubt very much the fashionable view that urticarias are of primary psychogenic origin.

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\*\*Presented April 24, 1957, at the annual session of the Arkansas Medical Society.



It has been known for a long time that introduction of certain substances into the skin, such as morphine or commercial peptone solutions elicit typical triple responses in the skin, indistinguishable from insect bites, nettle stings, and from wheals in urticarial eruptions due to ingested food or to inhaled material. However, Lewis has shown that although many substances elicit the triple response, there is only one substance which does occur in normal human tissues and which elicits wheal formation in such low concentrations namely in dilutions up to 1:2 million, that it is very feasible that it is formed or liberated in the human skin in such low concentrations, and that this substance is histamine. He developed the unitarian theory that the last link in the chain of events which leads to wheal formation is the liberation of histamine. He never could directly prove the validity of this histamine theory and therefore talked of an "H substance". He did not live to witness the triumph of his theory with the advent and great success of the anti-histaminic drugs.

Today we know that, indeed, histamine liberation is the final event in all urticarias and that histamine is liberated from the mast cells of the skin. Morphine and peptone are histamine liberators and so are the poisons of the insects, the bite of which elicits urticaria. The nettle hair, however, contains preformed histamine and when it stings there is no need of histamine liberation from the mast cell granules; the nettle punctures the histamine into the skin.

In urticarial diseases, in addition to the typical wheal, other lesions also may develop. One of these lesions is giant edema or giant urticaria which is often called angioneurotic edema for no good reasons. Giant edema is also based on histamine liberation and responds to antihistaminics. The mechanism being the same it is not surprising that urticarial wheal and giant edema occur often combined in the same patient, alternately or even simultaneously. The difference is that in giant edema the reaction takes place not in superficial but deep cutaneous blood vessels. Histamine does not reach the superficial free nerve endings

and, therefore, giant edema does not itch. But it may burn, particularly on palms and soles. Also, its resolution is much slower than that of the wheal, it may last a day or two.

Furthermore, urticarial eruptions often are combined with the appearance of erythematous macules. In these spots so little histamine has been liberated that it effects only the first step of the triple response. As a matter of fact, toxic drug eruptions often consist of erythematous patches only. Still, we classify them with urticarial diseases, because they are histaminic in nature and can be regarded as low grade urticarial diseases.

Sometimes these red blotches spread and show bizarre configurations such as centrifugal active borders, annular, ring-shaped figures, polycyclic borders, etc. Lewis has shown that these figures can be explained by the gradual spread of the antigen and by refractory periods of the tissue to the effect of histamine (or mast cell exhaustion).

Generalized urticarial eruptions are often accompanied by systemic manifestations. Urticarial wheals and giant edema occur on mucous membranes. Urticaria was seen on the gastric mucosa and in the bladder by gastroscopy and cystoscopy. Joint pains are possibly the expression of urticaria of the synovial membranes. Fever often accompanies urticarial eruptions.

Most urticarial eruptions the physician has to deal with are hypersensitivity reactions or allergic reactions. After ingestion of some food constituent or drug or on inhalation of some particulate matter, specific antibodies are produced in lymphoid cells and on repeated ingestion or inhalation of the same material a violent reaction takes place between antigen and antibody, presumably in the endothelial cells of the cutaneous capillaries, and histamine liberation results. If the antibodies are present in high enough concentration and are present in the blood serum, they can be demonstrated by the passive transfer test. The patient's serum is deposited in a healthy test person's skin; after a few hours the deposition site is scarified and the antigen is deposited on the scratch; a typical triple response

with the wheal and red flare develops immediately. What has happened is that antibodies have been transferred with the patient's serum into the normal individual's skin. There might also be an overflow of liberated histamine into the blood stream and if the histaminemia is intense enough anaphylactic shock results. Most manifestations of anaphylactic shock are explained by the biological effects of histamine and of heparin which also is liberated from the mast cell granules.

Unfortunately, passive transfer is not always positive in urticarial diseases, and, therefore, only the positive results can be used clinically to confirm the suspected antigens. If the passive transfer test is negative this does not mean that the suspected material is not the true offender. Why do not we get positive transfers in all cases? Either the concentration of the antibody in the circulating serum is not high enough or possibly the food constituent or drug ingested is not itself the antigen but a decomposition or a transformation product of it. There also is a strong possibility that some of the urticarial reactions are not based on an antigen-antibody reaction.

The routine scratch and intradermal tests are by far not as reliable as is the passive transfer test. We obtain far too many false positive and false negative scratch and intradermal reaction as to rely upon them. Besides, in cases of high sensitivity if we really hit the offending antigen with our intradermal test, we may elicit most unpleasant and sometimes quite dangerous anaphylactoid reactions.

Thus, the passive transfer test often being negative and the scratch and intradermal tests not being reliable our best method for finding the offending agent is still a very detailed thorough history. If the history yields suspicions, elimination of the suspected offending agent and if necessary, its readministration is the best clinical procedure to ascertain the cause.

In our days when as good as everybody takes drugs whether needed or not, urticarial eruptions due to drug sensitivity are by far the most common events. Taking a history about drug intake is quite an art because the patient too easily for-

gets about drugs he has taken. Or, what he buys across the counter, he does not call a "drug", for instance, aspirin or bromo-seltzer. And certainly, if we just ask as much as, "Have you taken any drugs?", he will not think of the injections he has been given by the doctor. I saw a patient with acute generalized urticaria who was worked up by a young resident, and this resident reported he was unable to find the cause of urticaria by history. He asked the patient about drug intake, but still missed the fact that just ten days prior to the urticarial outbreak (which is the anaphylactic latent period) the patient received tetanus antitoxin because of a minor injury on the street.

All the drugs may lead to urticarial hypersensitivity. However, vitamins and hormones, not being drugs in the real sense but metabolic products of our bodies, are not urticariogenic with the remarkable exception of insulin. Different drugs are antigenic to very different degrees.

In the good old days when a drug was discovered by history as the causative agent of acute urticaria and the drug was eliminated the patient cleared up in a few days. In our complicated modern age this is no more so simple. Cases of penicillin urticaria may linger on for weeks or even for months after penicillin has been discontinued. This possibly may be explained with the use of the depot-preparation. Small amounts of antigen may get absorbed into the system from the site of deposition for a long period of time and minimal amounts suffice to maintain the allergic reaction. Another possibility is that the acute allergic episode triggers some more or less heterogenous sensitization process, either cross sensitization with molds or sensitization to an entirely unrelated antigen which we cannot find. The mechanism of such a switch is really not understood. I have a patient now under observation who started out with urticarial wheals where she had contact with nickel and chrome-containing jewelry and zipper clips. All contacts with metal have been strictly eliminated but a low grade unexplained generalized urticaria is going on now for six months.

If our history concerning drug intake



is definitely negative, we have to turn to the possible causative role of food constituents. The first question is whether in the last ten days prior to the outbreak food was consumed which is not part of the usual menu and is ingested only rarely, for instance, sea food, exotic fruits, unusual vegetables, etc. Here again one has to ask with some obnoxious insistence because patients are not always very cooperative in remembering. If unusual food is not elicited in the history, one should turn to the inquiry whether some of the common foods have not been consumed lately in unusually large amounts. Curiously enough such quantitative jumps seem to promote allergization. I saw several adult patients who acquired urticarial sensitivity to egg white after they started to eat two to three times more eggs than before for reasons of some dietary fad or just being lazy to prepare some other food. Pork meat is another frequently encountered allergen. In search for food allergens some physicians try different schemes of elimination diets if the history is unclear. Among inhalant urticariogenic allergens I saw most frequently flower pollens to be the allergens. Contact allergens also may cause generalized urticaria if the allergenic conjugate is of such nature that it can be absorbed percutaneously.

Before discussing management, I would like shortly to mention those urticarial eruptions in which the primary eliciting cause is not a chemical substance but a physical agent. These agents are rubbing and/or pressure, heat, cold, and certain wave lengths of ultraviolet light. The best current explanation for these physical allergies is that physical action produce or liberate normal metabolites which do not cause any reactions in normals. However, hypersensitivity to any of these normal metabolites can be acquired in the same way as hypersensitivity is acquired to food ingredients or to drugs. It seems that antibodies to the normal metabolites are actually present because the sensitivity to the physical agent can be passively transferred. In one instance the normal metabolite has been discovered: it is acetylcholine in heat urticaria. Patients with this affliction dis-

play a triple response to local injection of high dilutions of acetylcholine and they respond in the same way to acetylcholine liberated in the skin by heat.

Interestingly, the same heat-sensitive patients suffer also from emotional urticaria also called "cholinergic urticaria". Patients suffering from this disease are overwhelmingly young females with light complexion. They break out with generalized urticaria when they get excited and/or when they get warm. These patients are not necessarily more emotional than other people and they do not liberate more acetylcholine with their nerve impulses. However, the liberated acetylcholine reacts with antibodies to acetylcholine and this reaction leads to histamine liberation. All physical urticarias respond well to antihistaminics.

The clinical situation when we first see a patient with urticaria or an urticarial toxic eruption, can be described schematically as this: if the urticaria has been of short duration and the circumstances of its onset are still remembered or can be uncovered by skillful history there is a very good chance to discover the cause which then can be proved to be the real cause by elimination, by passive transfer test, by routine allergic tests and if necessary by re-administration. When we see a patient who has been suffering from urticaria for many weeks, months or even years, with no or little remission in between in spite of environmental changes, and after all previous attempts to establish the cause have failed, there is little hope we can find a cause. Chronic urticaria thus remains a puzzle. The majority of patients suffering from chronic urticaria are postmenopausal women, but estrogenic hormone administration does not help them.

There are several hypotheses to explain chronic urticaria in which we are unable to establish a cause. The most fashionable and most frequently heard explanation these days is that it is psychogenic. I am sorry to say that there is not the slightest shred of evidence to justify this assumption. All persons with chronic urticaria are nervous, irritable, depressed or even despondent. And, if they were not, I would regard it as a psychic anom-

aly, because it is a misery to have chronic urticaria. Still, I have to see yet a patient whose chronic urticaria was cured by psychotherapy of any kind. There are, of course, cases in which after many years of psychoanalysis the urticaria, clears but such cures are indistinguishable from spontaneous cure. Emotional upsets may promote the formation of urticarial wheals via emotional vasodilatation. Also, the intensity of itch perception greatly depends on the emotional status. Thus, I do not deny that emotional upsets may seriously aggravate the course of chronic urticaria. But I emphatically deny that psychic conflicts can be the primordial cause, because, as I mentioned, this is a physiological absurdity, because wheals do not develop in response to nerve impulses alone.

Another explanation for these mysterious cases is that the allergen is so ubiquitous, so omnipresent that this is the reason it never can be found and environmental change does not help. I had a patient with urticarial sensitivity to rayon. This is just one example of ubiquitous antigens in modern life. My lady patient unwittingly got in contact with rayon textiles practically every day and was well only when she stayed in bed.

Finally, the third explanation is that chronic urticaria is not an allergic disease, but histamine liberation is based on some mechanism other than antigen-antibody reaction.

In any case, in the dark picture I have sketched to you on chronic urticaria there are two light rays beaming through the dark picture which might serve as a consolation. One is that it does not last forever. All urticarias, whether based on demonstrable sensitivities or not, burn out one day usually after two to three years, and never recur again. I saw many patients sensitive to food ingredients and to physical agents to lose their sensitivity spontaneously after three or four years of suffering. The other consolation is that in most cases we are able to control symptomatically urticaria quite effectively.

In the management, our foremost duty is to try everything to find the cause. Only, if all possible attempts have failed

should we resign to the exclusive use of symptomatic measures.

Judicious use of antihistaminics implies the establishment of the required maintenance dose. Of course, the severity of the eruption fluctuates day by day and the patient should be advised to try time and again whether he or she could not get along with less than originally prescribed. A recommendable practice is to use two antihistaminics in combination, e. g., pyribenzamine 50 millig. and histadyl 25 mg., taken at once t.i.d. or q.i.d. The different antihistamines have very different chemical structures and toxic and allergic manifestations are less likely to develop if smaller doses are given of two antihistamines than a larger dose of a single one. There is intolerance to antihistamines. A relatively early sign of such intolerance is leukopenia which should be watched. Paradoxically, even urticarial sensitivity may develop to antihistamines. In such cases, the antihistamine will effect more histamine liberation than it is able to neutralize. Drowsiness and disturbed coordination are other manifestations of intolerance. The side-effects of antihistamines which are entirely independent of their antihistaminic effect can be dodged by changing the preparation frequently.

There is the difficult question of whether one should use corticoids or ACTH. I am against it and avoid initiating this therapy whenever I can avoid it. In most cases of urticaria relatively high doses of cortisone or its derivatives must be given and earlier or later we might encounter undesired side effects. And when the doctor tries to reduce the dose we often see the so-called rebound phenomenon, the urticaria going wilder than it was before cortisone administration. Also, once we have started cortisone it is difficult to talk the patient out of it. He acquires an attitude of quasi-addiction.

We get along in the symptomatic treatment of urticaria quite well without the use of corticoids with judicious use of antihistamines and other measures. There is no urticaria which would not respond to antihistamines. It only can happen that so much histamine is liberated in wild attacks that not enough antihista-



mines can be given to neutralize all of the histamine, because of toxic effects of large doses.

In addition to antihistamines, vasoconstrictor agents have excellent effects. In hyperacute attacks we give epinephrine 0.2-0.3 cc. of 1:1000 dilution subcutaneously at a time. Two to three such injections during the night in the hospital may secure a quiet night. Higher doses are given in laryngeal edema. In less acute phases we use ephedrine  $\frac{3}{8}$  gr. t.i.d. or q.i.d. In some cases intravenous injections of calcium gluconate are very effective. We give 10 cc. of the 10 per cent solution, injecting it very slowly, if necessary several times a day. Calcium densifies the vascular wall and counteracts the exudation of plasma. In a few cases, I believe, I saw good effects also of autohemic injections. Judicious use of sedatives is often an important factor in management. Aspirin is a good symptomatic antipruritic agent.

Many patients like to have some local applications, and I give you just two formulas which can be used with benefit in most cases:

1. Zinc Oxide  
Talc aa 45.0  
Glycerin 20.0  
Aq. dist. q. s. ad 200.0

Sig.: Shake well. Apply locally with soft brush p.r.n.

2. Liquor carbonis detergens 2.4  
Alcohol 60 per cent q. s. ad 120.0

Sig.: Moisten cotton with solution and pat itching spots p.r.n.

In summary, although we should not be too proud of our achievements in the field of urticarial diseases, particularly because of our inability to understand most cases of urticaria, we can help our patients in most cases either by discovering and eliminating the cause or by giving symptomatic relief. However, good management requires time and thoughtfulness.

# Medical Philosophy in Economics\*\*

R. B. ROBINS, M.D.\*

Mr. Chairman, Fellow Physicians,  
and Guests:

There is an old expression, trite but of great value, which tells us: "Be not the first by whom the new is tried, nor yet the last to lay the old aside." As a general rule, that is pretty good advice for the practicing physician.

In my comments here today I shall be guided by that wise maxim. I do not intend to indulge in any blind, nostalgic admiration of the past, nor do I intend to worship indiscriminately at the altar of the new and novel.

We are living in a time of change, conflict and doubt. The clash between the old and the new is taking place in practically every phase of modern life—all the way from the international struggle over communism down to the local disputes over how little Johnny should be taught to read in the village school. Fortunately, we can take some comfort from the fact that the world has undergone many such eras of turmoil and dissension. So far, civilization has survived them, usually emerging with net gains in knowledge, material progress and human relationships.

Today, medicine is caught up in the stream of changing times and new ideas—just as much as government, business, industry, labor education, agriculture and other aspects of modern life. We no longer practice an ivory tower profession, in which our members can assume the austere, old-world role of "Herr Doktor"—with the aloof, patronizing attitude of "father knows best." Medicine today is beset by countless problems and differences of opinion—some of them arising from scientific progress and professional relations, others from the mounting public interest in the socio-economic aspects of medical care.

Our problem in medicine, as I see it, is essentially the same as the over-all prob-

lem in all of our modern conflict. That is to look and work for the greatest possible *net gain*—for the *best* that can be salvaged out of the clash between the old and the new. This calls for the highest type of *conservatism*—an effort to protect and maintain those basic values which have proven to be of true and lasting benefit in human life. At the same time, it also requires us to be *progressive*—especially with respect to the practical methods of getting things done in mid-Twentieth-Century America.

In medicine this means that we must strive to preserve the ethics, traditions and physician-patient relationships which we know are essential to medical progress and the public welfare. It also means that we should give active support to sound private or public programs which will increase the availability of medical facilities and services, but which will *not* impose any kind of third-party control over the practice of medicine. And it also means that we reserve the right to fight vigorously against any proposal which would *extend* third-party control over physicians, patients and medical services—whether by government, insurance companies, labor unions, industry or other sources.

In short, I think our task is to maintain the vitality and freedom of American medicine, while at the same time recognizing the realities of modern medical economics. That objective will be achieved neither through intemperate reactionaryism nor through pie-in-the-sky radicalism. It calls for positive, progressive, enlightened action within the framework of our free enterprise system.

In examining the old and lasting values—those basics which have proven themselves down through the entire history of medicine—we physicians must never lose sight of the fact that we are not just ministers to the human body and its ills. No matter how scientific or complex medicine may become, we also must remember that we minister as well to human hearts, minds and emotions. When a patient is

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\*\*Delivered at Luncheon Session, Lederle Laboratories Symposium, April 10, 1957, Greensboro, North Carolina.



ill and frightened, he needs more than a crisp diagnosis, a shot in the arm or a blood transfusion. He also needs a pat on the shoulder, some kind words and some friendly reassurance.

When our patients come to us, they are seeking not only scientific knowledge and skill, but also our judgment, sympathy and understanding. They want to be regarded *not* as cases, as syndromes or as hosts of an unusual strain of some particular virus, but as individual human beings. The true physician recognizes this and mixes his art with his science. Many of life's medical and health emergencies are best met, not by scientific measures alone, but by adding liberal doses of the so-called milk of human kindness.

The personal relationship between physician and patient—a vital ingredient in good medical care—must be protected against any and all influences that might interfere with it or destroy it. In so doing, we have to be aware of economic and governmental influences, and also of scientific or professional trends. As Dr. Dwight Murray, President of the American Medical Association, commented in his inaugural address last June: (and I quote)

"Our mutual task—both physicians and the public—is to regain our individuality. To do so, we must humanize and personalize the practice of modern medicine . . . What we need most in medicine today is to find some way of combining modern scientific methods with the personal, friendly touch of the old-time family doctor." (unquote)

Another basic which we must protect and strengthen is the fact that ours is a service profession, guided by a time-tested code of ethics. In the past, I feel, our honored position in the eyes of the public has arisen to a great extent from our devotion to ethical standards. If we sacrifice those standards to economic considerations, either personal or general, we shall become mere technicians and money-makers in the eyes of the public. If that happens, we shall lose not just our prestige but also our right to speak with authority and leadership on medical issues.

We must not allow medicine's sense of

ethics to be diluted or degraded—either by those in our own ranks who place too much value on mink coats and Cadillacs, or by those outside the profession who would like to regard medical service as just another commodity on the market place. Financial reward, price tags and mass production methods must never be allowed to replace service, quality and individuality as the predominant considerations in medical care.

Still another important value, closely related to the physician-patient relationship, is the principle of freedom of choice. We must preserve the patient's right to employ the physician he wants and to discharge a physician with whom he is not satisfied. And physicians, except in emergencies, must have the right to accept or reject patients.

Freedom of choice must be accompanied by subsequent freedom of action. The physician, in particular, must be free to employ his knowledge, skill, experience and judgment in the best interests of each different patient. He should not be hamstrung by third-party regulations over the who, what, when, where and why of medical care. Such controls, whether imposed by governmental or private sources, can serve only to stifle the physician's ability and incentive, and to give the patient mediocre, impersonal, assembly-line treatment.

These, in my opinion, are among the fundamental values that should be preserved—the personal relationship between physician and patient, medicine's devotion to ethical principles, freedom of choice and freedom of action. It also seems obvious to me that such values can be maintained effectively only under a voluntary, free enterprise system of medicine—not through government programs, social planning or Utopian ventures in the direction of the welfare state.

Nevertheless, in our devotion to what we believe in, we cannot afford to be blinded to realities. We have to recognize that there are medical economic problems which demand solution. And we have to realize that we no longer can be negative, apathetic or passive in our approach to those problems. If we are, the social planners and vote-conscious politicians

will slyly lead the people down the byways of government action.

The American people today—through newspapers, magazines, books, radio and television—are better informed than ever before on the advances of medical science. They also are extremely interested in the socio-economic-legislative aspects of medical care. They want good, modern medical service, at a reasonable cost, and through financial mechanisms which will protect them against severe drains on their incomes. Our job is to prove without doubt that private, voluntary programs will meet that need far better than panaceas which would extend government control, decrease the quality of medical care and increase the cost to all taxpayers.

The main avenue of approach, as I see it, is to give vigorous support to the further growth and improvement of voluntary health insurance. The time has already passed when physicians can merely look upon it as the lesser of two evils, or can simply pay lip service to its existence.

The American people—as free agents in a free society—have so far shown a decided preference for voluntary methods. During the past 25 years, and especially over the past ten years, the growth of voluntary health insurance plans has been remarkable. According to the latest estimates of the Health Insurance Council—and they were quoted by President Eisenhower in his January economic message to Congress—the end of last year saw 112 million people with hospital insurance, 96 million with surgical coverage and 63 million with medical protection.

Most notable of all is the fact that in just the past five years the number of people with major medical expense coverage has increased one hundred times over—from 100,000 at the end of 1951 to an estimated ten million at the end of 1956.

Despite this excellent record, a great deal of work must still be done to fill in the gaps and achieve maximum quality and quantity of coverage. Don't forget that the social planners—although they have been discouraged by the growth of the voluntary plans—are still at work trying to exploit any real or alleged weaknesses in voluntary health insurance. The

medical profession, therefore, should take vigorous, positive action to eliminate such weaknesses and thereby leave the planners without a case.

Through our own medical society plans, and through our influence with Blue Cross, insurance companies and other agencies in the field, we must work faster and harder to extend basic hospital, surgical and medical coverage to low-income people, the rural population, individuals not eligible for group protection, and retired persons in the over-65 age brackets.

We must advocate and help promote the fastest possible growth of major medical expense coverage, which gives financial protection against the serious, long-enduring, illnesses that sometimes can create financial catastrophe.

We should give active attention and support to sound new ideas—such as the proposal that people be given the chance to prepay, during their working years, for a paid-up annuity plan giving them health insurance coverage after they have retired. This problem of providing protection for older people is of special importance, for Oscar Ewing's old legislation—providing government-paid hospital care to those over 65—has been reintroduced in the present Congress.

We must work closely with public officials to develop efficient, humane programs of medical care for the indigent in every state and locality, so that particular problem can be clearly separated from the over-all question of medical care for the total population.

We must make a real effort, as individuals and as a profession, to give the people a clear, factual picture of health care costs. We must enable them to see the great difference between the modest rise in physicians' fees and the much sharper rise in hospital costs during the inflation that began in 1940. At the same time, we should help the hospitals explain the very logical reasons for their big increase in operating expenses. And we should point out that, in spite of the sharp rise in hospital room rates, medical care costs as a whole have increased considerably less than the general cost of living.

Meanwhile, there is need for still great-



er effort to provide effective, well-publicized grievance committees, emergency call systems, placement programs, and community services of various kinds.

All of this is going to require a lot of imagination, vigor, flexibility, adaptability and medical unity in the very immediate future. But there is no time to waste. We have to prove conclusively that free-enterprise medicine offers the best answers to American medical problems. That is the only way to cope with undesirable or dangerous legislation—the only way to stop the trend toward government encroachment in the field of medical care.

At the same time, recognizing the needs and methods of our time, we should not have a chronically negative attitude toward all medical or health legislation. In other words, legislation should not be regarded as bad simply because it involves government action or government funds. The medical profession in the past has supported many sound, constructive proposals in Congress—for example, the Hill-

Burton Hospital Survey and Construction Act and its recent amendments, the Mental Health Survey Act of 1955, and the pending legislation for one-time construction grants to medical schools.

Although we believe primarily in private initiative and state and local action, we always should keep the door open so that we can support federal legislation which meets clearly established needs, has sound objectives, stimulates private and local initiative, and contains adequate safeguards against bureaucratic control.

In formulating a medical philosophy in economics, I think we should bear in mind that there is no progress without risk. The whole story of medical progress has evolved from men who were not afraid to venture new theories, experiments and techniques.

You can't steal second base with one foot still on first base. In medical economics, let's preserve the basic rules of the game, but let's try to score more runs.

# Initial Management of the Burned Patient

BY CURTIS ARTZ, M.D.\*

The treatment of a small partial thickness burn is a rather minor procedure because complete healing occurs without scarring if the area is kept clean. The management of an extensive burn—one of the most complex illnesses to which man is liable—requires the utmost in professional skill and care. It involves the understanding of surgical technic, respiratory physiology, marked physiologic changes in electrolyte and fluid balance, nutrition, bacteriology and psychiatry.

## FIRST AID

The initial step in the care of the burned patient is to cover the burn wound in order to prevent contamination and to alleviate pain by preventing air from coming in contact with the injured surface. The patient should be transported to a physician's office or hospital as soon as possible. Ointments or home remedies should not be applied. A clean sheet or cloth may be used as an emergency covering. Stimulants are to be avoided. The patient is usually frightened and should be reassured. No fluids should be given orally.

## APPRAISAL OF THE INJURY

The severity of the burn injury can be assessed quite satisfactorily since it depends on two factors: (1) percentage of body surface burned and (2) depth of burn. Obviously, other less important factors influence the seriousness of injury. These include location of the burn, age and physical condition of the patient and the presence of concomitant injury.

The percentage of body surface involved can be determined by the simple "Rule of Nines" or, more accurately, by plotting out the burned areas on a Berkow chart. Lund and Browder (1) have determined the changes in percentage of body surface of various parts that occur during different stages of development from infancy through childhood. The use

of Lund and Browder's modification of the Berkow charts is the acceptable method for determining percentage of body surface burned.

Although many classifications have been used to differentiate various depths of burn, it has been common practice to divide burns into three categories: first degree, second degree and third degree burns. First and second degree burns are known collectively as partial thickness burns, and third degree burns are full thickness burns. Even in the most experienced hands the diagnosis of the depth of burn is most difficult because there are no definite clinical criteria for the degree of burn. This difficulty might be expected as there are various gradations of injury in an extensive burn. There are certain factors, however, that may aid the physician in estimating the depth of injury. The cause of the burn frequently gives some clue as to its depth. First degree burns appear as a simple erythematous flush. They are dry, quite painful and usually they do not show blister formation. Second degree burns are caused by short periods of exposure to intense flash heat, contact with hot liquid or they may form the peripheral zone of a deeper flame burn. They are frequently characterized by the formation of blisters. The surface is a mottled red or pink and moist because a plasma-like fluid exudes from the injured area. A second degree burn is painful and sensitive to the air. Third degree burns are usually caused by actual flame or contact with hot objects. Since the entire layer of the skin is involved in a coagulation necrosis, the third degree burn is usually dry and pearly white or charred in appearance. Third degree burns are not very painful. In fact, the area is almost insensitive because the terminal nerve endings are inactivated by the deep injury. The impairment in sensation has been used clinically as a test for depth of skin loss.

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A hypodermic needle may be used to test pain sensation in the injured area. This so-called "pin prick test" may show greatly reduced pain sensibility which is indicative of full thickness injury. If there is increased sensitivity to pain, it is probably a partial thickness burn.

Any physician who is called upon to treat an open fracture of the femur is aware of the immediate necessity of general supportive care of the patient and transportation to a well-equipped hospital where an experienced staff can care for such an injury. Similar management is required for a severe burn. All too often a physician who sees a patient having a burn of 25 per cent of the body surface feels that he can take care of the patient until it is time for grafting and then refer him to a plastic surgeon. This postponed referral is deplorable. Inadequate management during the initial period is followed by infection, chronic anemia, weight loss and heaping granulations. As a result when the patient is referred to the plastic surgeon, he is frightened, in chronic pain and demoralized.

It is extremely important to realize that disposition of a burned patient depends on the appraisal of the severity of the injury.

*Critical burns* should be referred to a well-equipped general hospital where there is a surgeon experienced in burn care. These include burns complicated by respiratory tract injury, partial thickness burns of more than 30% of the body surface, full thickness burns of the face, hands, feet, genitalia or of more than 10 per cent of the body surface, burns complicated by fractures or major soft tissue injury, electrical burns and deep acid burns.

*Moderate burns* may be treated in a small community hospital. These include partial thickness burns of 15 to 30 per cent of the body surface and full thickness burns of less than 10 per cent of the body surface providing the hands, face, feet and genitalia are not involved.

*Minor burns* may be treated on an out-patient basis. These include partial thickness burns of less than 15 per cent of the body surface and full thickness burns of less than 2 per cent of the body

surface that may be treated on an out-patient basis until the patient needs to be hospitalized for minor grafting.

#### RELIEF OF PAIN

Even though pain is not a prominent feature of extensive deep burns, a small dose of morphine is beneficial when given intravenously. Morphine eliminates apprehension, makes the patient more comfortable and alleviates the pain connected with the cleansing of the burn wound. In minor burns pain is usually relieved when the wound is covered.

#### ANTIBIOTICS

No form of local care affords complete protection against infection. Routine antibiotic therapy is indicated. Prophylactic therapy is initiated as soon as possible. Several antibiotics are satisfactory. Penicillin and streptomycin should be used routinely in all burns of more than 15 per cent of the body surface. This may be discontinued after five or six days. If there is inadequate control of infection, a broad spectrum antibiotic must be given. The selection of the broad spectrum antibiotic depends upon the sensitivity of the bacteria that colonize the burn wound.

Anaerobic organisms frequently are found on the surface of a deep burn. Clinical tetanus has been reported in burns. For this reason, routine tetanus prophylaxis must be given.

#### RESPIRATORY TRACT DAMAGE

As soon as the physician sees a burned patient, he should decide whether or not a tracheotomy is necessary. A tracheotomy must be performed whenever respiratory damage is suspected. The presence of established respiratory difficulty may be diagnosed by hoarseness, coughing, rapid respirations or cyanosis. Physical signs in the chest such as rhonchi and rales may or may not be present. A history of being burned in a closed space or the appearance of redness in the posterior pharynx may suggest a diagnosis of respiratory damage. A tracheotomy should be performed if there is a burn of the face and neck complicated by symptoms of respiratory difficulty. Usually this procedure can be postponed until pain has been alleviated and replacement therapy

has been initiated. All full thickness burns of the face require a tracheotomy.

## FLUID THERAPY

Burned patients are usually quite thirsty and demand large quantities of water. In moderate burns most of the replacement therapy can be carried out by the oral route. Intensive intravenous therapy is required only in burns of more than 20 per cent of body surface. In second degree burns up to 20 per cent oral Haldane's solution is usually adequate. This solution is prepared by dissolving one-half teaspoonful of salt and one-half teaspoonful of bicarbonate of soda in a quart of water. The solution should be chilled before being given. If this solution is not well tolerated, lactated-Ringer's solution can be given intravenously in amounts of about 2 cc. per kg. for each per cent of burn.

More extensively burned patients require careful intravenous therapy. The use of a burn formula is recommended for estimating the fluid requirements during the first 48 hours (2). A burn formula expresses the fluid needs of the patient about as well as the average digitalizing dose expresses digitalis requirements. Just as the internist is guided in the administration of digitalis by certain signs and symptoms, the surgeon treating burns must vary the fluid requirements predicted by the formula in accordance with the clinical response of the patient. A formula is an invaluable and practical guide to the rough estimate of initial fluid therapy. It is no substitute for scrupulous attention to clinical details.

A good formula is as follows: (1) Colloids, such as plasma, dextran, and blood—0.5 cc. per kg. for each per cent of burn, (2) Electrolytes, preferably lactated-Ringer's or a balanced electrolyte solution—1.5 cc. per kg. for each per cent of burn, and (3) Glucose and water—2000 cc.

This formula outlines the estimates of fluid needs for the first 24 hours. For burns of more than 50 per cent of the body surface, the fluid estimate should be made on the basis of a 50 per cent burn. The colloid and electrolyte requirements during the second 24 hours is approximately half that required during the first

24 hours. In addition, during the second 24 hours 2000 cc. of glucose in water is given.

In burns that are primarily second degree, most of the colloid requirements can be met by virus-free plasma or dextran. In burns that are predominantly third degree most of the colloid requirements should be given as whole blood. Patients who have more than 25 per cent of the body surface burned should have a cutdown cannula inserted in a suitable vein and an indwelling catheter placed in the bladder.

If a patient is seen within one or two hours after injury treatment may be initiated with lactated-Ringer's solution followed by a colloid solution. A 24-hour plan for therapy should be made on the basis of the formula. The administration of the estimated fluid requirement is planned in the proportions of one-half for the first 8-hour period, one-quarter for the second 8-hour period and one quarter for the third 8-hour period. Management varies as the clinical condition of the patient varies. Particular attention should be paid to the rate of urinary flow which must be measured and recorded at hourly intervals. Generally, it is preferable not to give anything by mouth for the first 48-hour period in extensively burned patients. When thirst is severe small amounts of water may be given but the amount of water that the patient drinks must be measured and recorded. Periodic determinations of blood pressure are very helpful. A fall in blood pressure usually indicates the need for further colloid therapy.

The rate of urinary output is by far the best single index in determining adequacy of therapy. A urine flow of 30 to 50 cc. per hour is adequate for an adult. If this rate of flow is maintained serious trouble is rarely encountered. A urinary volume of 10 to 22 cc. per hour for two or more hours is an indication for more energetic therapy. A urinary volume of 100 cc. per hour is a sign of over-zealous therapy and indicates that the rate of fluid administration must be reduced. Excessive therapy leads to over expansion of the extracellular fluid and to pulmonary edema.



The patient who is markedly oliguric or anuric shortly after injury poses a special problem. A differentiation must be made between renal failure and insufficient therapy. During the past few years acute renal failure has not been a common complication of burns. Although the evidence is inconclusive, experiences demonstrate that good fluid management serves as an excellent prophylaxis against acute renal failure. A water or plasma volume expander loading test is usually of diagnostic value. If the oliguria persists after 1000 cc. of a plasma volume expander given rapidly, renal failure due to organic changes in the renal tubules is likely to be present. Under such circumstances fluid restriction is indicated. However, most instances of oliguria in burns follows inadequate therapy and an increased renal output will be achieved as soon as proper fluids have been administered.

After 48 hours the best practical guide for therapy is the hematocrit and plasma sodium concentration. Blood should be given in quantity sufficient to maintain a hematocrit of 45. Most patients show a good clinical response when the plasma sodium is in the range of 135 to 138 mEq. per liter. Dextrose and water should be given in amounts necessary to maintain the plasma sodium in that range. The moderately burned patient will usually tolerate oral fluids after the first 48 hours. The more severely burned patient will require careful intravenous therapy. The extensive insensible water loss that occurs in severely burned patients may give rise to hypernatremia unless adequate amounts of electrolyte free water are given in the critical period between the third and the fifteenth postburn day. Patients who are unable to tolerate oral feedings require 80 to 120 mEq. of potassium daily after the first 48 hours.

While extensive laboratory studies have been of immense help in research, only a limited number of such determinations are necessary guides to therapy. In moderate burns the hematocrit and concentration of plasma sodium are the only necessary measurements. In extensively burned patients a battery of serum and urine electrolyte determinations may be required. The serum protein concentra-

tion is altered more or less predictively and need not be performed routinely.

#### TREATMENT OF THE WOUND

After correction of deranged physiology attention may be directed to the definitive care of the wound. Every effort should be aimed toward minimizing further contamination and converting the injury to a surgically clean wound. All personnel who come in contact with the patient should be masked. The burned areas must be cleansed thoroughly and all debris and detached epidermis should be removed. Intravenous morphine analgesia is usually sufficient for this procedure and anesthesia is unnecessary. The burn surface should be cleansed with bland white soap and water at a temperature of 100 degrees F. The soap may be applied with a soft moist gauze pad and removed by irrigation with sterile water. The surrounding normal skin should be shaved. All blisters must be broken and devitalized epithelium is cut away with sterile scissors. Firm thick blisters that occur on the palms of the hands may be left unruptured.

After the burn wound is thoroughly cleansed a decision must be made as to the type of further local care. This may be achieved by large bulky occlusive dressings or by exposure. These two methods do not constitute two distinct schools of thought. They are techniques that may be used to compliment each other. A good bulky dressing may be made by the use of large amounts of fluffed gauze. Dry fine-mesh gauze or lightly impregnated petrolatum gauze should be placed next to the wound. Local antibiotics are of no value initially and should not be used at the first dressing. They may be of value at a later date if infection occurs. Dressings should be changed about every five to seven days.

The accepted technic for the exposure method includes placing the patient in bed on clean, nonsterile sheets in a comfortable position with affected areas completely exposed (3). The exudate of a partial thickness burn dries in 48 to 72 hours and forms a hard crust that serves as a natural protective cover for the wound. Epithelial regeneration proceeds beneath this crust and is usually complete

in 14 to 21 days. The crust then falls off spontaneously and leaves behind a nonscarred, healed surface. The evolution of a full thickness burn treated by exposure is different. Surface exudation is minimal and crust formation does not occur. Instead, the pearly white or charred dead skin dehydrates and is converted into an eschar in 48 to 72 hours after exposure. This eschar serves as a temporary physiologic covering until liquefaction occurs beneath it in 12 to 21 days. As liquefaction of the dead tissue occurs beneath the eschar, the area softens. The eschar is ready for removal and granulating tissue is formed beneath this area. At this time, the eschar should be removed by application of wet dressings or by surgical excision.

The occlusive dressing method is applicable to all areas; exposure is not because certain burns may be of such configuration that adequate exposure cannot be achieved. Under such circumstances it may be wise to expose some areas and dress others in the same patient. Almost all partial thickness burns do extremely well when treated by exposure. This method is certainly preferred for burns of the face, burns of the perineum and burns of one side of the body. A better positioning of the hands and less edema is possible when a dressing is applied. Since exposure is applicable only to burns and not to any other wounds the co-existence of soft tissue wounds and burns at the same site contraindicates exposure. Burns treated on an out-patient basis do best when treated by dressings.

In burns of less than 10 per cent of the body surface that can unquestionably be diagnosed as third degree primary excision of the full thickness injury and immediate application of a split thickness skin graft may be carried out. This is particularly true of burns of the dorsum of the hand. The aim in initial care of the burn wound is to keep it as free as

possible from infection and to have third degree burns ready for grafting before the thirtieth day.

## ACTH AND CORTISONE THERAPY

The administration of ACTH or cortisone diminishes the patient's resistance to infection. There is no sound evidence that this type of therapy is of any value except in rare instances where adrenal insufficiency is present. Additional hormone therapy is unnecessary because the patient liberates an adequate amount of adrenal cortical hormone after the severe insult of a burn (4). Since infection is one of the chief problems in burns, it would seem that any type of medication that might decrease the patient's resistance to infection would be strongly contraindicated.

## SUMMARY

The initial management of the burned patient requires careful attention to all details of therapy. Severely burned patients should be referred to a hospital where an adequate staff and equipment is available for management. Initial supportive therapy in the form of colloids and electrolytes should be assured before local care is attempted. The type of local care selected, either occlusive dressings or exposure, should be used in accordance with the exigencies of the situation and the experience of the surgeon. From evidence available at present, ACTH and cortisone therapy is contraindicated.

1. Lund, C. C., and Browder, N. C.: The estimation of areas of burns. *Surg., Gynec. & Obst.* 79: 352-358, 1944.
2. Reiss, E., Stirman, J. A., Artz, C. P., Davis, J. H., and Amspacher, W. H.: Fluid and electrolyte balance in burns. *J.A.M.A.* 152: 1309-1313, 1953.
3. Artz, C. P., Reiss, E., Davis, J. H., and Amspacher, W. H.: The exposure treatment of burns. *Ann. Surg.* 137: 456-462, 1953.
4. Wilson, H., Lovelace, J. R., and Hardy, J. D.: The adrenocortical response to extensive burns in man. *Ann. Surg.* 141: 175-179, 1955.



# ◆ *What's* NEW ◆

## UROLOGY

HAL R. BLACK, JR., M.D.\*

The past decade has seen many advances in urology. This is especially so in the refinement and perfection of existing techniques of diagnosis and treatment. We have also gained some of the answers to some of the problems that have for years confronted the Urologist.

Diagnostic procedures continue to improve. Aortography, after an initial surge of popularity, has fallen somewhat into disuse because of the incidence of mortality with the procedure. The procedure is very limited in its use in the differentiation of kidney cysts from kidney tumors, but is occasionally valuable in determining the blood supply of the kidney or adrenal glands. The procedure is also very useful in the determination of the size and location of renal artery aneurysms or aortic aneurysms. Since it has been found that aortography is accompanied by a significant mortality its use should be limited only to those procedures where its findings might definitely influence therapy.

Retroperitoneal air insufflation is now in wide use and has been simplified to the point of safety and high diagnostic value. The presacral route of administration is preferred because of the ease of accomplishment and little morbidity produced by this method. The most popular media for insufflation have been ordinary room air or oxygen, however, at present Nitrous Oxide is being used on a more or less experimental basis. The work with Nitrous Oxide thus far indicates that the pictures taken are of good quality and may be taken more rapidly than with air or oxygen. There is less likelihood of the uncomfortable, but not particularly dangerous, subcutaneous emphysema that oc-

asionally accompanies the use of other media. Also, it is felt that Nitrous Oxide, being extremely soluble, will practically eliminate the possibility of air embolism. We have found that air insufflation by the presacral route is often a very good method of outlining retroperitoneal tumors, the size, shape and position of the kidneys, and the size of the adrenal gland. A combination of retroperitoneal air insufflation with intravenous pyelography frequently gives much more diagnostic information than is obtainable by either method alone.

The adrenal gland has in the last ten years come under the realm of the Urologist to a great extent, primarily because many adrenal tumors are diagnosed by the Urologist. This is often true where the Urologist works in conjunction with the Internist in the diagnosis of pheochromocytoma. Diagnosis of pheochromocytoma has been greatly increased by the use of the blocking agents, Benzodioxane, Dibenamine, and Regitine. Confirmation of the size and location of the tumor is frequently accomplished by retroperitoneal air insufflation. Of the three blocking agents, Regitine has proved very useful in the surgical removal of pheochromocytomas. Benzodioxane has limited surgical use because of its short action. Dibenamine has limited surgical use because it is almost a complete sympatholytic blocking agent. Regitine has a longer acting effect than Benzodioxane but its blocking effect against Norepinephrine is not complete so that a patient suffering from hypotension, either produced by pheochromocytoma or by the Regitine blocking effect, may be rescued from the hypotensive state by Norepinephrine. With the severely hypertensive pheochromocytoma patient, preparation for sur-

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gery is done by first reducing the blood pressure with the Regitine drip intravenously and carrying the patient partially through the surgery on the Regitine drip. While the pheochromocytoma is being manipulated at the time of surgery, the Regitine prevents the severe hypertension that would otherwise develop. Once the adrenal gland is removed, the blood pressure immediately drops and the intravenous infusion of Norepinephrine must be immediately instituted. The mortality of this type of surgery has been greatly reduced with our increasing ability to control the blood pressure.

For many years the permanent diversion of the urinary stream has been a problem to the Urologist and many methods of diversion have been devised. These methods have all been, to varying degrees, unsatisfactory. We have now developed a method of diversion which, while it still presents several problems, solves many of the very difficult problems that have been persistent through the years. This method is a transplantation of the ureters into an isolated ileal segment. This procedure has been popularized in the past few years by Dr. Eugene Bricker of Saint Louis. There are several reasons why it has become a method of choice where a permanent diversion is desired, especially if the diversion is done for curative rather than palliative reasons. In this type of diversion the ileal pouch does not act as a substitute bladder but merely as a conduit to an external reservoir. The ileal pouch allows little or no absorption of metabolites or electrolytes into the circulation because it contains only a small amount of urine at any time. Consequently, electrolyte imbalance, so frequently seen in transplantation of the ureters into the colon, is avoided. A continuous contamination by the fecal stream is avoided, the fecal current is preserved, and no reservoir exists to allow constant exposure of the intestinal mucosa to the urine. Reflux of infected urine is obviated due to the very low pressure under which the urine is contained in the ileal pouch. Also, the ureteral blood supply is maintained because the mobilization of only a short portion of the ureter is required for anastomosis. Consequently, strictures of the anastomosis are uncommon. With this method the pa-

tient remains in electrolyte balance and avoids episodes of chronic pyelonephritis so frequently seen in other methods. One disadvantage, of course, is that the patient does not have a continent urinary bladder, however, the external bag, which is cemented to the skin over the ileostomy site, is very little trouble to the patient. Now the surgeon can cure a patient with markedly contracted bladder, of some pelvic diseases or carcinomas, without fear that the patient will die within a few months to a few years due to the complications from the urinary diversion.

It has not been many years since Dr. Rubin Flocks first injected radio active gold into an inoperable carcinoma of the prostate. In the years that have followed, the procedure has been struggling to come out of the realm of research and experimental surgery. This method of treatment is at present restricted to several centers around the country. Although complications have been numerous, gradually the technique is being improved and favorable results are becoming more and more evident. The patients on which this type of therapy seems to be indicated are those who have already had adequate estrogen therapy for inoperable carcinoma of the prostate and have reached the point where estrogens are no longer effective. In some of these patients the injection of radio active AU 198 into the cancerous prostate will produce a localized regression of the cancer and marked slowing of the dissemination to other areas of the body. Although this is not a cure, it may be excellent palliation and the patient may gain many comfortable years that would otherwise be denied him. As the procedure becomes perfected, and if it stands the test of time, it will become more widespread in its usage.

There are several things in the field of urinary tract calculi that are worth mentioning. Although we have still not developed a method for preventing calculus formation, we are gradually making progress toward this end. Some things, such as the Hyaluronidase which was used just a few years ago in attempt to prevent stone formation, have been discarded as of little or no value. Currently, it is felt that by the use of Aspirin, or better still Salicylamide, given to the patient in reg-



ularly divided dosage for long periods of time, the protective colloids in the urine are increased and the tendency to stone formation is greatly reduced. It should be understood that, in the elimination of urinary tract calculi, the metabolic stones should be treated by proper dietary restriction. There is no substitute for the relief of obstruction, infection, and high water intake, as routine methods of treatment. Still in the realm of research are studies involving the use of ultrasonics. The instrument must be brought in contact with the stone and the ultrasonic vibrations are used to produce stone fragmentation. This procedure would allow stones to be reached much higher in the urinary tract and would obviate many surgical procedures. There are many problems, particularly the production of heat and tissue reaction, with the use of the instruments; however, this is a new approach to the stone problem.

Clorpactin is helping to solve the problem of pain associated with interstitial, tubercular, and other types of severe chronic cystitis in women. Previous treatment has consisted of irrigations and occasional hydraulic distention of the bladder. The standard irrigating solution has been increasing strengths of Silver Nitrate solution. Mild urinary sedatives and antiseptics have also been used. These measures have frequently left much to be desired. The patient remains uncomfortable and treatments must be given at regular intervals indefinitely. Clorpactin, whose active ingredient is Chlorine, is now being used in a series usually of four bladder irrigations. In most cases, especially of interstitial and

tuberculous cystitis, relief of symptoms has been dramatic. An occasional repeat irrigation is necessary to maintain relief. Cystoscopically the evidence of the damage and irrigation is essentially unchanged, but the patients are much more comfortable and are very grateful. These irrigations have produced no side effects but may be extremely painful at the time of treatment and for twenty-four hours thereafter. In our office we use the Trilene Mask for anesthesia for the first and second treatments.

As the use of antibiotics increases the bacteria of urinary infections show changes to more resistant organisms. The *Proetus* and *Pseudomonas* group of organisms, and resistant strains of other organisms, are becoming much more common. Fortunately, the development of new antibiotics has kept pace with the development of resistant strains. Sensitivity studies must be done more often to develop the drug of choice. The Urologist prefers the use of sulfa drugs wherever possible. The new twelve hour sulfa, Kynex, has produced good therapeutic results and is convenient and economical for the patient. Furadantin has become an excellent drug because it is relatively well tolerated and has a high index of organism susceptibility. The use of 50 mg, instead of 100 mg doses, seems adequate in most urinary tract infections. The mycins are used when sensitivity studies indicate.

As the specialty of Urology is refined and developed through the years the fruits of the findings and discoveries become available to all physicians for the better care of their patients. This is as it should be.

# A TEACHING SEMINAR

## FROM THE

### UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

## Let's Be Sensible About Radiation

BY DAVID M. GOULD, M.D.\* AND WALTER MAUDERLI, D. SC.\*\*

When the University of Arkansas Medical Center opened, many hundreds of people visited the Radiology Department and showed both curiosity and pride. However, one gentleman, an engineer, reacted quite differently. He expressed great concern over the destructive effects of radiation. He spoke of the danger to future generations due to genetic damage. It was his opinion that people would be better off, if all this new x-ray equipment were never used. This opinion is being expressed more often now because of considerable publicity in the lay press concerning the hazards of atomic warfare and radiation effects.

While it is true that uncontrolled radiation can do great damage, the overall benefits from *controlled* atomic energy and *controlled* radiation far outweigh the harm.

The modern physician depends on x-ray examinations to aid him in diagnosis of his patients' ills. Fractures, peptic ulcers, chest disease, brain tumors, and many others can be clearly demonstrated on films with the use of radiation. Frequently the radiologist is called upon to treat patients with neoplastic disease.

But, to be fair to our engineering friend, let us talk about the hazards of radiation—the kind, the magnitude, and the control of these hazards.

#### ACTION OF RADIATION

Penetrating rays act in matter by ionizations. The exact mechanism of action in living cells is not known. It is likely that the ionizing rays interfere with the enzyme systems and do particular damage to the nucleus of the cell. It is also

likely that the nucleus is sensitive to ionizing rays because of the crucial nature of chromatin. Chromatin is the stuff of inheritance. When the cell divides the chromatin forms into chromosomes which in turn are composed of genes. Chromatin, chromosomes and genes are probably formed from a complex chemical called deoxyribonucleic acid, commonly known as D. N. A.

The cells most sensitive to ionizing radiation are the cells which reproduce fastest. In the body the average length of life of the cell is an indication of the rate of reproduction of the parent cell. A lymphocyte lives about three days. Thrombocytes or platelets remain intact for 4 to 9 days. An epithelial cell of the intestinal mucosa lives about four days. A granulocyte lives about 7 to 11 days. A mature red blood cell exists for 120 days, but since it has no nucleus it is not really a living cell and is not sensitive to radiation. However, the erythroblast, which is the parent of the red blood cell, is sensitive to radiation. Thus, erythroblast damage will eventually result in anemia.

There are some cells which live almost the entire life of the individual. Examples of these cells are: heart muscle fibers, striated muscle cells and neurons. These mature cells do not reproduce and are quite insensitive to radiation.

The effects of ionizing rays resemble the ageing process. Scattered cells become more variable in size, shape and chromatin content. The older cells aggregated in the organism show evidence of useless metabolic products such as certain pigments and show cytoplasmic atrophy. Under the influence of radiation, products, such as melanin, tend to decrease; collagen tends to hyalinize; elas-

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tic tissue tends to degenerate. Glucksmann (1) stresses the increased differentiation of cells after irradiation.

In cancer treatment, we sometimes have to accept local tissue damage in order to cure the cancer. The ill effects, which may occasionally be permanent, are a small price to pay for a patient's life.

#### LOCAL SKIN IRRADIATION

The effects of radiation on the skin develop insidiously. We have long been familiar with these effects. Acutely, depending upon the dose, erythema develops within two or three weeks. Then a series of changes take place. These changes may develop over a period of one month to many years. The skin reaction and sequence are roughly as follows: Increased or decreased pigmentation, epilation, drying of the sweat and sebaceous glands, atrophy, telangiectasis, ulceration and hyperkeratosis. Many years later epidermoid carcinoma may develop in the skin that is severely damaged by radiation. It is paradoxical that penetrating rays have the power to both cure and produce cancer.

#### ACUTE WHOLE BODY IRRADIATION

Whole body irradiation, which occurs in humans when an atom bomb is exploded, as in Nagasaki, affects the blood forming system, the gastro-intestinal tract, and skin, in this order of sensitivity. The supply of white blood cells, thrombocytes, gamma globulin and later red blood cells is depleted. In the gastrointestinal tract ulcerations develop because the normal regeneration of epithelial cells cannot occur. The skin temporarily loses its hair.

In whole body irradiation with a dose of 500 roentgens, approximately 50 per cent of humans die. (See Table I.)

Before we go on, let us attempt to define a roentgen. The definition is difficult and frustrating because the roentgen does not measure something tangible and familiar as does a pound of hamburger or a mile of road. The roentgen is a measure of an amount of ionization which takes place when a beam of radiation passes through 1 cubic centimeter of air. When a beam, no matter how large or

small, and regardless of the time involved, produces 2.083 billion ionizations per 1

TABLE I.  
ACUTE GAMMA OR X-RAY  
SYNDROME AFTER WHOLE  
BODY IRRADIATION  
MODERATELY LETHAL DOSE  
400-600

1. and 2. Week	No clear symptoms.
3. Week	Beginning epilation, loss of appetite, general malaise, fever.
4. Week	Inflammation of mouth and throat, petechiae, diarrhea, nose bleed, rapidly increased weakness, death.

Mortality about 50%

cubic centimeter of air through which it passes, the radiation equals one roentgen. If tissue is exposed to one roentgen in the region of one million volt radiation the energy dissipated is 93 ergs.

It is not correct to speak in terms of roentgen UNITS, just as it is not correct to speak of a person weighing 160 pounds UNITS or a man being 6 feet UNITS tall.

#### MAXIMUM PERMISSIBLE DOSE (M.P.D.)

To help control radiation the National Committee on Radiation Protection and Measurement (N.C.R.P.), sponsored by the National Bureau of Standards, issues from time to time recommendations concerning safe exposure levels. In 1949 the maximum permissible dose (M.P.D.) recommended to persons working with radiation was set at 300 mr (0.3 r) per week. Recently the Committee recommended a lower yearly and total accumulated dose (2). It is quite possible that the weekly limit of 300 mr. will be lowered to 100 mr. (See Table II.)

TABLE II.  
MAXIMAL PERMISSIBLE DOSE FOR  
X AND GAMMA-RAYS UP TO 3 MEV.

Occupational Conditions	
Total	(Age minus 18 years)
Accumulated Dose	times 5 rems 5 (N-18)
Yearly Dose	5 r
Weekly Dose	0.3 r (300 mr)
Daily Dose	0.05 r (50 mr)

## LET'S BE SENSIBLE ABOUT RADIATION

These values apply to all critical organs except the skin for which the value is doubled.

### RADIATION INDUCED LEUKEMIA

A study of patients who received radiation treatment for ankylosing spondylitis (Marie Strumpel's disease) showed a considerable increase in the incidence of leukemia (3).

The survivors near the atom bomb hypocenter had a 12 fold increased incidence in leukemia compared to the survivors of the periphery. The latent period was 3 to 6 years.

March (4), in a statistical analysis, found that radiologists die of leukemia about nine times more frequently than other physicians.

From these various data, Lewis (5) calculated that the risk of radiation induced leukemia, per roentgen, per year, was 2 persons out of a million. In other words if an individual were occupationally exposed to 250 r (A rather large dose and equal to the total maximal accumulated permissible dose for a person age 68.) the probability of his developing leukemia would be 1 chance in 2000 per year.

While the relative death rates would appear high, one must remember that the absolute number of leukemic deaths among radiologists would be low. In the analysis of March, 6 radiologists out of about 4000, in a five-year period, died. The small absolute figures made it difficult to realize the statistical relationship of cause and effect between radiation and leukemia (6). Let us compare the risk of radiation induced leukemia with more familiar risks such as the risk of lung cancer from smoking cigarettes or the risk of dying in an automobile accident.

If an average individual smokes at the rate of one package of cigarettes a day the risk of developing lung cancer would be 860 chances per million per year or a little less than 1 chance in a 1000 each year (7). This yearly risk is about twice that of total body exposure to 250 r.

The risk of accidental death from a motor vehicle driven 10,000 miles per year would be 640 chances per million per year (8). This yearly risk would be approximately the same as developing leukemia with an exposure of 250 r.

It may be concluded that smoking a package of cigarettes a day is more dangerous than driving 30 miles a day or accumulating 50 years of radiation at the rate of 5 roentgens per year.

### RADIATION HAZARDS TO FUTURE

#### GENERATIONS (9, 10, 11)

When the reproductive organs or gonads are exposed to radiation, sudden destruction or change in the genes bring up mutations which may cause the offspring to differ radically from the parents. These mutations may persist in the race to the last child born, unless eliminated by natural selection. Genetic death of an undesirable gene results from sterility, death of embryo or fetus or death before reproduction. On very rare occasions a mutation may produce a superb individual, but in most instances, it produces undesirable characteristics such as hereditary defects, congenital malformations and constitutional weakness.

From experiments with plants, animals, and a study of people in Nagasaki and Hiroshima, geneticists came to the conclusion that any radiation which penetrated to the reproductive cells and the gonads was harmful to future generations. This damage is cumulative, and statistically it makes no difference whether the gonads receive 100 r over a 30 year period or whether 100 r are given in one minute. Furthermore, from a broad population viewpoint it makes no difference if 100 people receive 100 r or 1000 people receive 10 r. The general pool of genes is affected the same way.

Society as a whole can allow certain small select groups to be exposed to higher doses than the general population. In occupations with radiation hazards such as radiology, uranium mining and nuclear reactor maintenance, the exposure should be kept to 50 r during the first 30 years and should not exceed another 50 r between 30 and 40 years of age. Geneticists warn society that radiation damages the stuff of inheritance and causes mutations which are generally harmful.

Natural radiation, including cosmic rays, has been present ever since the earth was born. Cosmic rays include some of the most penetrating rays known. Some



cosmic rays could go through many inches of lead or many feet of earth. Cosmic rays also change certain atoms into radioactive atoms.

In our own bodies there is a certain amount of natural radioactive potassium, carbon, and even radium. These atoms are present, of course, in infinitesimal amounts, but they are measurable. They also irradiate us continuously. (See Table III.)

TABLE III.  
NATURAL RADIATION SOURCES  
(12)

	Radiation Dose Per Year	
1. Radioactive Isotopes in the body		
Potassium 40 Average amount in microcuries	0.1	20 m rad
Carbon 14 Average amount in microcuries	0.06	1 m rad
Radium 226 disintegration products	0.001	2 m rad
2. External Radiation		
Cosmic rays		28 m rad
Local surrounding gamma rays		46 m rad
Total Dose Per Year		97 m rad
Total Dose to Age 30 Years	2.91	rad

According to the best estimates of scientists working with the National Academy of Science, people in general receive from natural irradiation about 3 r during their lives from birth to age 30. If you live in Denver, you might receive a little more from cosmic rays because of the altitude. Granite has a relatively high natural radioactivity so that people who live in stone houses may receive a little more radiation than people living in brick houses. People living in wooden houses receive even less than those who live in brick houses. Uranium miners receive large exposures. It is said that in Schnee-burg, Germany and Joachimsthal, Czechoslovakia there is so much inhaled radioactive material that many workers develop cancer of the lung.

We can then assume that the average natural radiation from both inside and outside the body would amount to about 3 r during the first 30 years of life. We talk about the first 30 years of life because one-half of the number of children born in this country are born from fathers less than 30 years old and mothers less than 28

years. 90 per cent of the children born are from parents below the age of 40. Therefore, after age 40, an individual's exposure to radiation is not likely to harm the inheritance of the human race.

Beside natural radiation there is also man-made radiation. Man-made radiation results from radioisotopes and x-ray generating equipment. The atom bomb generates large quantities of isotopes. "Little atom bombs" like the ones used at Nagasaki and Hiroshima are measured in thousands of tons of TNT or kilo-tons, and develop a radioactive fall-out of perhaps a few thousand square miles. This fall-out consists of many radioactive elements with varying half lives and includes Strontium 90, half of which disintegrates in 28 years. Metabolically and nutritionally radioactive Strontium appears to plants and animals much like calcium. Most of the ingested radioactive Strontium is deposited in the bones and remains for years.

The power of the newer hydrogen bomb is measured in megatons, or millions of tons of TNT. They explode so violently that they reach very high altitudes and their products are widely scattered about the world. The fall-out comes down by gravity, precipitation of rain and snow, convection, and diffusion currents.

It has been estimated that with all the bombs detonated thus far and the continuation of detonation at the present rate, individuals will absorb about 0.1 roentgen over a period of about 30 years. The children of today have more radiostrontium in their bones than did their parents when they were children.

The estimate of radiation used for medical purposes accounts for about 4 roentgens during the first 30 years of life. Some people, of course, receive considerably more while others receive none at all.

Considering all these facts, the geneticists have estimated that mankind would not be unduly harmed if an average of 10 roentgens over and above natural radiation were absorbed by the reproductive cells during the first 30 years of life. The National Committee on Radiation Protection (N.C.R.P.) states "the maximum permissible dose (M.P.D.) to the gonads for the population of the United States as a

whole from all sources of radiation, including medical and other man-made sources, and background, shall not exceed 14,000,000 r per million population over the period from conception to the age of 30, and one-third that amount in each decade thereafter." (Average 14 r per individual).

To the 3 roentgens from natural radiation we add approximately 4 roentgens from medical irradiation and roughly 0.1 roentgen from the irradiation scattered by the atomic bomb, the total is slightly over 7 roentgens. Since the permissible limit, from a genetic viewpoint, is 14 roentgens, including natural radiation, we are approaching the limit of a genetically safe level. It is as though every individual is born with 14 roentgens credit in the bank. He is forced to spend roughly 3 roentgens on natural radiation and will probably spend over 4 roentgens on man-made sources of radiation. Therefore, the average individual usually has only 7 roentgens credit in the bank or, in other words, by the time he is 30, he has spent one-half of his radiation credit.

What if society disregards these warnings, and radiation accumulates due to a lack of control? When the average level of radiation for the first 30 years of life reaches between 30 and 80 roentgens, there will be a doubling of the present number of mutations. The present burden of 2 per cent hereditarily defective children will be increased to 4 per cent.

What can be done about the radiation hazard? The ideal goal, but impossible to achieve, would be no radiation at all to the gonads from birth to the end of the reproductive period of man. We certainly can do nothing about the 3 roentgens of natural radiation. We are left with the possible controllable sources—medical radiation, and radiation caused by atomic bomb explosions and atomic power plants.

The possible harm from atom bomb testing must be weighed by society in the light of the need for national defense. Thus far, the atom bomb radiation would appear to be a rather small hazard. However, if the rate of testing increases greatly or if nuclear power installations are not very carefully controlled, the con-

tamination of the whole world with radioactive materials can pose a grave hazard.

The control of medical radiation poses a moral dilemma where one must weigh the health and welfare of the individual against the hazard to future generations. Faced with this choice, we would favor the welfare of our patient now. Self-preservation is a more powerful instinct than race preservation.

There are, however, many ways by which the medical radiation hazard can be diminished and still do justice to the individual while minimizing genetic damage.

First, any x-ray generator that is not supervised by specially trained personnel should be banned. Every state should ban shoe fitting fluoroscopy. These machines are useless except for advertising wares. The hazard is all the more because children are usually subjected to their rays.

## EXPOSURE FROM DIAGNOSTIC EXAMINATIONS

An ordinary chest film delivers 0.04 roentgens to the chest and less than 1 milliroentgen to the gonads. The regular photofluorography delivers 1-2 roentgens to the chest and 5 milliroentgens to the gonads. The newer mirror optics system photofluorograph delivers 1 roentgen to the chest and less than 1 milliroentgen to the gonads. One can calculate that if 10 roentgen gonadal radiation were to be used up entirely by conventional photofluorographic chest films it would take over 2000 chest exposures during the first 30 years of life.

Physicians and radiologists should do everything possible to arrive at a diagnosis with a minimal amount of radiation. Here are some rules to follow:

1. Tend to use the more efficient higher kilovoltage and low milliamperes techniques.
2. Test your machine periodically for leakage and output.
3. Use at least 2 mm. of aluminum filtration.
4. Use field limiting cones and diaphragms as much as possible.
5. Choose the fastest practicable screen, film, and chemical combination.
6. Process films full time using active chemicals and proper temperature.



# FLUOROSCOPY

7. Adapt your eyes for 20 minutes before fluoroscopy.
8. Always wear protective gloves and aprons.
9. The fluoroscopic tube-table distance should be 18 inches or greater.
10. Keep the shutters down to the smallest practical field.
11. Use the fluoroscope quickly and efficiently to observe motion and function and not as a screening procedure. Do not day-dream with foot on the switch.
12. Protect the gonads in patients below the age of 40 especially.
13. Ask yourself "Is this examination important to the health and well-being of the patient and what is the most efficient way to carry it out?"

Throughout the history of mankind, we find that advances made through the use of energy and power have presented hazards. Then, when man could define, understand, and finally control this energy, he turned the hazards to his advantage.

The hazard of fire to the caveman was conflagration, wasting forests and animal life and endangering his own existence. When he could recognize and appreciate the potential of this energy, he harnessed the destroyer and made it his servant. It could then heat his cave, cook his food, and harden his clay into useful vessels.

Controlled explosions give us the combustion engine, which powers our motor cars and airplanes. These vehicles can be a menace or a blessing. They can and do cause death and destruction. Properly used they broaden man's life and open up new horizons.

Lightning — electricity in the raw — is destructive. Electricity controlled gives us heat, light, power, radio, television, computers and labor saving devices of all sorts.

Nuclear energy, uncontrolled, produces a Nagasaki and Hiroshima and could conceivably destroy mankind. If man makes this source of energy his servant, he can move mountains, change the course of rivers, and convert barren deserts to fertile gardens. He can probe Nature's subtlest secrets such as the metabolic processes of life itself.

Harnessing of nuclear energy surpasses any of the challenges thus far presented to man. His experience of coping successfully with fire, electricity, and explosives should stand him in good stead in accepting this, his newest challenge.

## References

1. Glucksmann, A. Response of Human Tissues to Radiation with Special Reference to Differentiation. *Brit. J. Radiol.* 25: 38-43, Jan. 1952.
2. National Committee on Radiation Protection and Measurement. Maximum Permissible Radiation Exposures to Man. A Preliminary Statement. *Am. J. Roentgenol.* 77: 910-912, May 1957.
3. Swaay, H. Van Aplastic Anemia & Myeloid Leukemia After Irradiation of the Vertebral Column, *Lancet* 2: 225-227, July 30, 1955.
4. March, H. C. Leukemia in Radiologists in a 20 Year Period. *Am. J. M. Sc.* 220:282-286, Sept. 1950.
5. Lewis, E. B. Leukemia and Ionizing Radiation. *Science* 125: 965-972, May 17, 1957.
6. Dameshek, W., Gunz, F. W. Diagnostic & Therapeutic X-Ray Exposure and Leukemia. *J.A.M.A.* 163:10, 838-840, March 9, 1957.
7. British Medical Research Council. Cancer of the Lung—Recent Knowledge of Causative Factors. June 1957. Quoted from U. S. News & World Report, July 1957.
8. National Safety Council: Accident Facts. Chicago, 1957.
9. Muller, H. J. The Genetic Damage Produced by Radiation. *Bulletin of the Atomic Scientists* 11:6 210, June 6, 1955.
10. National Academy of Science. Biological Effects of Atomic Radiation. Summary Reports. Washington National Academy of Sciences—National Research Council, 1956.
11. National Academy of Science. Biological Effects of Atomic Radiation. Report to the Public. Washington National Academy of Science—National Research Council, 1956.
12. Spiers, F. W. Radioactivity in Man and His Environment. *Brit. J. Radiol.* 29: 409-417. Aug. 1956.

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# What Is Your Diagnosis?



FOR ANSWER SEE PAGE 450

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## RESOLUTION

DR. R. C. HOOPER

WHEREAS, an all-wise providence has seen fit to remove from our midst Dr. R. C. Hooper, who was our valued co-worker and second vice president of the Arkansas Medical Society, we the members of the Society mourn and deeply regret his sudden departure.

WHEREAS, as a physician in his chosen field of urology, he attained a great measure of distinction and won the respect of his colleagues, as well as the gratitude and love of a host of sorrowing people.

WHEREFORE, BE IT RESOLVED, that the Arkansas Medical Society express

to his family the esteem in which he was held as a member of the Society and its heartfelt sympathy to the family at the untimely loss that they have sustained.

BE IT FURTHER RESOLVED, that a copy of this resolution be made a matter of record in the minutes of this meeting; that a copy be sent to the family and a copy sent to the Journal of the Arkansas Medical Society.

Approved and adopted this 19th day of January 1958.

ARKANSAS MEDICAL SOCIETY  
T. Duel Brown, M.D., President  
James M. Kolb, M.D.,  
Chairman of the Council



## A Pressing Need—Research Facilities

F. Douglas Lawrason, M.D.

What is the worth of a School of Medicine or a University Medical Center? Its value is difficult to measure except in terms of long-range service to the community and the state.

This service is both direct and indirect. The direct service is easily seen in the numbers of patients treated in the clinics, the emergencies cared for, and in those patients discharged from the hospital. It is easy to count the fractures set, the tonsils removed and the new babies born. The University Hospital excels in such statistics.

But is this the true value of a University Medical Center? Is this the function that sets the University Center apart from any other medical center or large welfare clinic and charity hospital? The answer is, of course, no. In taking care of people who need medical attention and who cannot pay for it, the University Center merely joins the long list of charitable institutions throughout the country that are charged with this great responsibility.

What are these other responsibilities and obligations that differentiate the University of Arkansas Medical Center from the charitable service institutions? They are education and research. These two objectives are sometimes lost in the roar of the medical service demanded daily by the sick and the disabled. If the University Medical Center is to survive and establish leadership in Arkansas in meeting the health needs of the State, this institution of higher learning, if worthy of the title, must be recognized for its primary purpose — education.

How does one measure the academic efforts and accomplishments of education as they relate to a specific institution? A tradition of high standards, of sound purpose, of inspired thought, and a history of endeavor and contribution are some of

the signals of educational achievement. To meet these objectives, the institution must have a student body and a faculty dedicated to the principles of higher learning and the acquisition of knowledge. Of the two, the faculty holds the key to success. With an inspired faculty, the institution will always be able to attract good students — without it, the good student will go elsewhere. In this sense, the quality of faculty stands as the nucleus of academic effort which ultimately defines fundamental educational achievement. Thus, the worth and the tradition of an institution of higher learning rest primarily with the faculty.

Modern medical education demands more than just teaching. It demands a search into the biological aspects of life that are not known or understood. It demands a faculty of students — men who are constantly learning, searching and discovering. It demands a mind that is open and scientific.

Not only does medical education demand these attributes in a faculty today, but the public, having tasted the fruits of medical progress over the years, inherently demands a continuing and even more inspired effort on the part of the medical educator and investigator. There is no question that the march of medical progress must continue, and the only place that this can be accomplished is within the laboratories of the universities and their schools of medicine.

The University of Arkansas Medical Center has been recently completed. Although adequate hospital and school facilities have been built, essentially no space has been provided for research in the clinical sciences and in some of the basic science departments. At this time it does not seem appropriate to request the State for further construction especially when there are great unmet needs elsewhere within the State.

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\*Provost, University of Arkansas Medical Center, Little Rock, Arkansas

Nevertheless, it is imperative to move ahead without hesitation if we are to fulfill our function as a university. Accordingly, plans have gone ahead for the construction of a two million three hundred thousand dollar research building. Half of the cost will be borne by the Federal Government through one-to-one matching funds similar to the Hill-Burton construction for hospitals. The other half must be derived from private sources and it is planned to raise a million dollars through selective solicitation.

It is important to emphasize that these plans do *not* include the use of State tax money in the construction of the building or in its maintenance. Research grants-in-aid provide overhead cost with each research project in the amount of at least 15 per cent. It is fully expected that with additional laboratory space a minimum of a million dollars a year in research projects will be brought into the University. The overhead on this amount will pay for the maintenance of the building.

The people of the state should realize that the construction of this research building is an integral part of the educational planning of the University Medical Center and is as important to its ultimate success as the construction of facilities for teaching and service. The physicians who are constantly aware of medical progress will understand this need. This would seem to be an appropriate time for the doctors throughout the state to support this important phase of the development of the University of Arkansas Medical Center.

Without additional laboratory space in which to conduct research, it will be most difficult to retain the staff and faculty already here, not to mention the problem of acquiring additional staff as the years go by. If the University Medical Center is to achieve the sound objectives of medical education and fulfill the purposes for which it has been built, support is needed to bring about the construction of the proposed research building. This support is not only in the form of financial support but is manifested in understanding, enthusiasm and pride in Arkansas' University Medical Center.

## PAST PRESIDENT RICHARDSON WARNS OF SOCIALISM

To the Editor:

Congressman Wilbur D. Mills of Arkansas has just been elevated to the Chairmanship of the Committee on Ways and Means in the United States House of Representatives. He is in an extremely important position and probably ranks next to the Speaker himself in influence and power. Mr. Mills has stated that he wants to know how Arkansas doctors feel about being placed on the "Social Security" rolls.

As you know the left wing "Physicians Forum" in New York is circularizing Arkansas physicians urging them to write to Congressman Mills supporting a bill putting us on the Social Security dole.

Some favor it because it looks like something for nothing.

Others favor it as they near 65.

Most of us want to keep off the rolls as it means adding to our taxes, with increases as the years progress.

We fear Social Security's stability because in 1957 it paid out more than it received. It promises to do worse in 1958.

Most of us fear "Social Security" because it is not economically sound to believe one can send money to Washington, have the Bureaucrats take out their cut, and get back more than we put in.

It is a step to compulsion in Medicine, the only free group left. It is another step to pure socialism and Government ownership.

Write to the Honorable Wilbur D. Mills and express your opposition to the "Social Security" that, all too frequently, a Physician cannot collect. His address is House Office Building, Washington, D. C.

We have inherited a country with considerable personal freedom left to its inhabitants. Let's help save it for our children, allowing them the same freedoms.

Each physician should respond so that our real desires can be known, not just those of a vocal minority. Let the results be from a majority, also vocal.

Secretary Paul Schaefer would appreciate a copy of your letters.

Again, let every physician write or wire Mr. Mills now. Sincerely,

Fount Richardson, M. D.



# PROGRAM

## EIGHTY-SECOND ANNUAL SESSION

### ARKANSAS MEDICAL SOCIETY

May 5-6-7, 1958

Arlington Hotel, Hot Springs

## ANNOUNCEMENTS

### REGISTRATION—

The registration desk will be located on the mezzanine floor of the Arlington Hotel and will be open from 1:00 p. m. to 5:00 p. m. Sunday, May 4th, from 9:00 a. m. to 5:00 p. m. Monday and Tuesday and from 9:00 a. m. to noon on Wednesday.

Delegates are requested to register as early as possible, presenting credentials in proper form at the time of registration. Members and visitors are required to register, as admission to all sessions will be by badge. Bring your 1958 membership card to facilitate registration. Members of the American Medical Association from other states may register as guests.

Special telephone service will be maintained at the registration desk: phone number NAtional 3-5801. Advise your office that you can be reached at that number from 9:00 a. m. to 5:00 p. m.

### MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society, including past presidents, will meet as follows:

Sunday Night, May 4th

8:00 p. m. in Cafe 2, Arlington Hotel

Monday, May 5th

7:30 a. m. in Cafe 2, Arlington Hotel

Tuesday, May 6th

7:30 a. m. in Cafe 2, Arlington Hotel

Wednesday, May 7th

7:30 a. m. in Cafe 2, Arlington Hotel

### FIFTY-YEAR CLUB

A breakfast for members of the Fifty-Year Club of the Arkansas Medical Society will be held in the Montague Room, Arlington Hotel, at 7:30 a. m. Tuesday morning, May 6th. Members are requested to contact Dr. J. H. McCurry, Fifty-Year Club Secretary, at the Arlington Hotel before 6:00 p. m. Monday, May 5th.

### PAST PRESIDENT'S BREAKFAST

The past presidents' breakfast will be held in the Montague Room, Arlington Hotel, at 7:30 a. m. on Wednesday, May 7th.

### ARKANSAS ALUMNI ASSOCIATION AND CONTRIBUTORS TO JEFF BANKS MEMORIAL STUDENT AID FUND

All contributors to the Jeff Banks Memorial Student Aid fund and all Arkansas Alumni are invited to attend a luncheon to be held Monday, May 5th. Details will be announced later.

# GUEST SPEAKERS

82nd ANNUAL SESSION, ARKANSAS MEDICAL SOCIETY

HOT SPRINGS, MAY 5-7, 1958



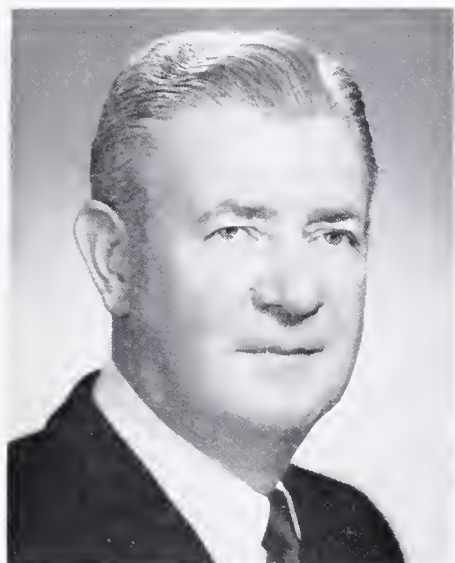
**MILTON H. ERICKSON**

Private Practice of Psychiatry, Phoenix, Ariz.  
Third General Session, Tuesday, May 6th  
"The Treatment of Painful Terminal Illness"



**MALCOLM B. DOCKERTY**

Consultant and Head of Section in Surgical Pathology, Mayo Clinic,  
Rochester, Minnesota  
Fourth General Session, Wednesday, May 7  
"The Pathology of Chronic Ulcerative Colitis"



**ROBERT WATSON**

Associate Professor, Neurological Surgery,  
University of Arkansas School of Medicine, Little Rock, Arkansas  
Second General Session, Monday, May 5th  
"Neurosurgical Problems of the General Practitioner"



**BROWN M. DOBYNS**

Assistant Chief of Surgical Service, Cleveland City Hospital,  
Cleveland, Ohio  
First General Session, Monday, May 5th  
"Functional Nature of Thyroid Tumors and  
Their Clinical Significance"



## GOLF TOURNAMENT

Members are urged to bring clubs and enter the annual golf tournament. The committee promises plenty of prizes. Play on the Pineview course, Hot Springs Country Club on May 4, 5, 6 and 7. Register at the Pro shop and pay reduced fee of \$2.50. The Arlington P. G. A. Tournament will be held beginning May 8th and many of the country's outstanding golfers will be playing the course during the Medical Society play. This will afford members an excellent opportunity to observe top players in action.

## 1938 CLASS REUNION

The Arkansas Class of 1938 will hold a reunion dinner at 7:30 p. m. at the Arlington Hotel Sunday night, May 4th. All members of the class are urged to attend.

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### FIRST GENERAL SESSION

**Monday, May 5th, 9:00 A. M.**

**Main Ballroom, Arlington Hotel**

**T. Duel Brown, President, Little Rock, Presiding**

- 9:00 Call to order, Invocation  
President's Address—T. Duel Brown, Little Rock

#### Scientific Session

**Randolph Ellis, Malvern, Presiding**

- 9:35- 9:55 "Prenatal Care, Delivery and Postnatal Care of the RH Negative Patient", Jack Pritchard, University of Texas Southwestern Medical School, Dallas  
10:00-10:20 "Hazards and Precautions for the Patient and the Doctor in Diagnostic Roentgenology", Raymond R. Lanier, University of Colorado Medical Center, Denver  
10:20-10:35 Questions and Answers  
10:35-11:00 Visit Exhibits  
11:00-11:20 "Advances in Surgery of Congenital Heart Disease"—Dwight C. McGoon, Mayo Clinic, Rochester, Minnesota  
11:25-11:45 "Functional Nature of Thyroid Tumors and Their Clinical Significance", Brown Dobyns, Cleveland City Hospital, Cleveland, Ohio  
11:45-12:00 Questions and Answers

### SECOND GENERAL SESSION

**Monday, May 5th, 1:00 P. M.**

**Main Ballroom, Arlington Hotel**

**Major E. Smith, Dermott, Presiding**

- 12:50- 1:30 Scientific Movie — "William Harvey and the Circulation of the Blood"  
1:35- 1:55 "Hematuria", Horace V. Munger, Lincoln, Nebraska  
2:00- 2:20 "Mutual Problems of Medical Practice and Public Health" Lee Burney, Surgeon General, United States Public Health Service, Washington, D. C.  
2:20- 2:30 Questions and Answers  
2:30- 3:00 Visit Exhibits

ARKANSAS MEDICAL SOCIETY MEETING, MAY 5-6-7, 1958

- 3:00- 3:20 "Fractures and Fracture Dislocations of the Wrist", Hugh  
M. A. Smith, Jr., Memphis, Tennessee  
3:25- 3:45 "Neurosurgical Problems of the General Practitioner,"  
Robert Watson, Little Rock  
3:45- 3:55 Questions and Answers

**House of Delegates**

**Main Ballroom, Arlington Hotel, 4:00 p. m.**

**Monday Evening, May 6th**

**Buffet Dinner and Party—6:30 p. m.**

**Majestic Lodge on Lake Hamilton**

Tickets, \$4.50 each, may be purchased at registration desk.

Special buses will leave the Arlington beginning at 6:00 p. m.

**THIRD GENERAL SESSION**

**Tuesday, May 6th, 8:30 a. m.**

**Main Ballroom, Arlington Hotel**

**John D. Olson, Fort Smith, Presiding**

- 8:30- 9:00 Scientific film—"Red River of Life"  
9:00- 9:05 Call to order, Invocation  
9:05- 9:25 "The Diagnosis of Gynecological Tumors", Felix Rutledge,  
University of Texas Postgraduate School of Medicine,  
Houston, Texas  
9:30- 9:50 "The Treatment of Painful Terminal Illness", Milton H.  
Erickson, Phoenix, Arizona  
9:50-10:00 Questions and Answers  
10:00-10:30 Visit Exhibits  
10:30-10:50 "The Psychological Factors in Illness", Leo H. Bartemeier,  
Seaton Institute, Baltimore, Maryland  
10:50-11:00 Questions and Answers  
11:00-11:30 Visit Exhibits  
11:30-12:00 Memorial Service  
Presiding: T. Duel Brown, Little Rock, President  
Invocation, Mrs. T. D. Brown, Little Rock  
Reading of names of deceased Auxiliary Members,  
Mrs. J. W. Kennedy  
Reading of names of deceased members, T. D. Brown  
Eulogy, Henry G. Hollenberg, Little Rock  
Benediction, Mrs. T. D. Brown

**Tuesday Afternoon**

**May 6th**

**NO GENERAL SESSIONS SCHEDULED**

**SPECIALTY SECTION MEETINGS**

**PEDIATRICS**

**12:00—1:30 Lunch**

**Velda Rose Motel**

**Vida H. Gordon, Chairman**



# GUEST SPEAKERS

82nd ANNUAL SESSION, ARKANSAS MEDICAL SOCIETY  
HOT SPRINGS, MAY 5-7, 1958



**HORACE V. MUNGER**

Assistant Clinical Professor of Urology,  
University of Nebraska College of Medicine, Lincoln, Nebraska  
Second General Session, Monday, May 5th  
"Hematuria"



**JACK A. PRITCHARD**

Professor and Chairman, Department of Obstetrics and Gynecology,  
University of Texas Southwestern Medical School, Dallas, Texas  
First General Session, Monday, May 5th  
"Prenatal Care, Delivery, and Post-Natal Care of  
the RH Negative Patient"



**LEROY E. BURNEY**

Surgeon General, United States Public Health Service  
Washington, D. C.  
Second General Session, Monday, May 5th  
Subject to Be Announced



**J. A. BARGEN**

Chairman of Sections on Gastroenterology, Mayo Clinic,  
Rochester, Minnesota  
Fourth General Session, Wednesday, May 7th  
"Problems in the Management of Ulcerative Colitis"

1:30- 4:30 Round Table Discussion

Subject: Infectious Disease; Practical Aspects with Emphasis on Viral Infection. Fred M. Taylor, Houston, Texas, Moderator

Clinical Manifestations:

Poliomyelitis—Theodore C. Panos

Infections that Simulate Poliomyelitis—Fred M. Taylor

Varicella in the Adult Patient—Fred M. Taylor

Immunization; Albert E. Hensel, Alexandria, Louisiana

Therapy:

Use of Gamma Globulin in Infectious Disease—Vida H. Gordon

The Role of Steroids in Treatment of Infectious Disease—Theodore C. Panos

4:30- 5:30 Annual Meeting of Arkansas Chapter, American Academy of Pediatrics, Clarence Webb, M.D., Shreveport, Louisiana, District Chairman of American Academy of Pediatrics, guest speaker.

**SURGERY**

**Majestic Hotel, 12:30 p. m.**

Luncheon and round table discussion with guest speakers Dwight C. McGoon and Brown Dobyns participating.

**ARKANSAS PSYCHIATRIC SOCIETY**

The Arkansas Psychiatric Society will meet in the Sky Room of the Velda Rose Motel at 1:30 Tuesday afternoon, May 6th. A short business meeting will follow the scientific program. Dr. Leo Bartemeier will speak on a subject to be announced.

**RADIOLOGY**

**Cafe 2, Arlington Hotel**

12:30- 1:30 Lunch

1:30- 2:30 Business meeting and election of officers

2:30- 3:30 Scientific Session

3:30- 4:30 Film Session and Case Discussion

**OBSTETRICS AND GYNECOLOGY**

**J. F. Kelsey, Fort Smith, Chairman**

**Banquet Room, Arlington Hotel**

12:30 Lunch

2:00 Scientific Program—Wm. D. Thornton, Texarkana, Moderator "Obstetric Hemorrhage due to Abnormal Hemostasis"; Jack Pritchard, Dallas, Texas

2:30 "Cervical Cancer in County Medical Society Tumor Clinic—10 Year Analysis", William B. Harrell, Texarkana

2:50 "Clinical Correlation of Papanicolaou Smears With Subsequent Pathological Findings", Robert Chappell, Texarkana

3:10 Scientific Paper

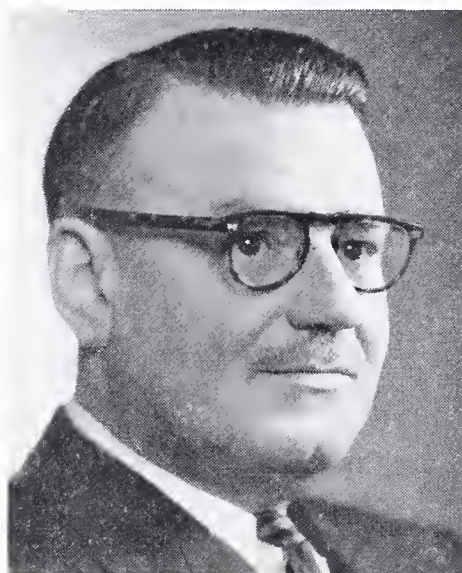
3:30 "The Value of Surgical Procedures in Treatment of Patients With Carcinoma of the Cervix", Felix Rutledge, Houston, Texas



# GUEST SPEAKERS

82nd ANNUAL SESSION, ARKANSAS MEDICAL SOCIETY

HOT SPRINGS, MAY 5-7, 1958



**LEO H. BARTEMEIER**

Medical Director, Seton Psychiatric Institute  
Baltimore, Maryland

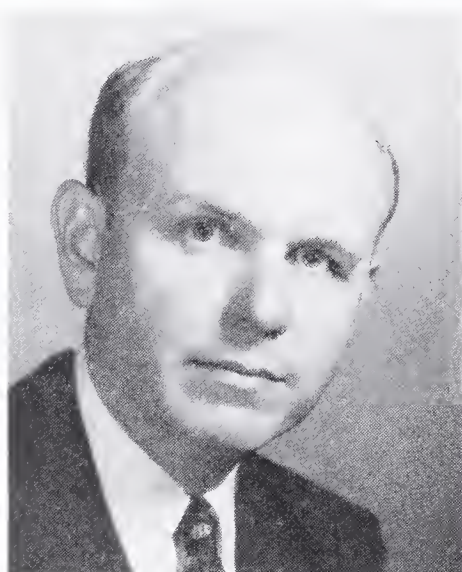
Third General Session, Tuesday, May 6  
"The Psychological Factors in Illness"



**HUGH SMITH**

Campbell Clinic, Memphis, Tenn.

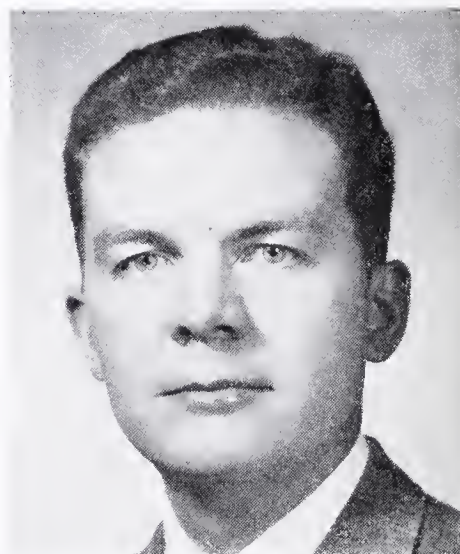
Second General Session, Monday, May 5  
"Fractures and Fracture Dislocations of the Wrist"



**FELIX RUTLEDGE**

Professor of Gynecology, The University of Texas  
Postgraduate School of Medicine, Houston, Texas

Third General Session, Tuesday, May 6  
"The Diagnosis of Gynecological Tumors"



**DWIGHT C. McGOON**

Consultant in Surgery, Mayo Clinic, Rochester, Minnesota

First General Session, Monday, May 5  
"Advances in Surgery of Congenital Heart Disease"

**EYE, EAR, NOSE, AND THROAT**

**James L. Smith, Little Rock, Chairman**

**Montague Room, Arlington Hotel**

The E.E.N.T. Section will meet as usual with lunch served at 12:30. A business meeting will follow the scientific program.

"Carcinoma of the Larynx"—Francis E. LeJeune, Ochsner Clinic, New Orleans, Member of Board of Otolaryngology

"Ptosis and Its Repair"—Harold Beasley, Fort Worth, Texas

"A Case Report of Metastasis of Malignant Melanoma of the Skin to the Uveal Tract"—Everett Moulton, Fort Smith

**UROLOGY**

**Fountain Room, Arlington Hotel**

Lunch at 12:30 followed by Scientific Meeting.

**Tuesday Evening, May 6th**

**ANNUAL BANQUET—7:00 P. M.**

**Main Dining Room, Arlington Hotel**

Presiding: T. Duel Brown, President, Little Rock

Master of Ceremonies: Mr. Chester Lauck, Houston, Texas, Executive Assistant, Continental Oil Company

Presentation of Golf Awards

Banquet—Dinner music by Hotel Orchestra

Inauguration of President

Choral Music



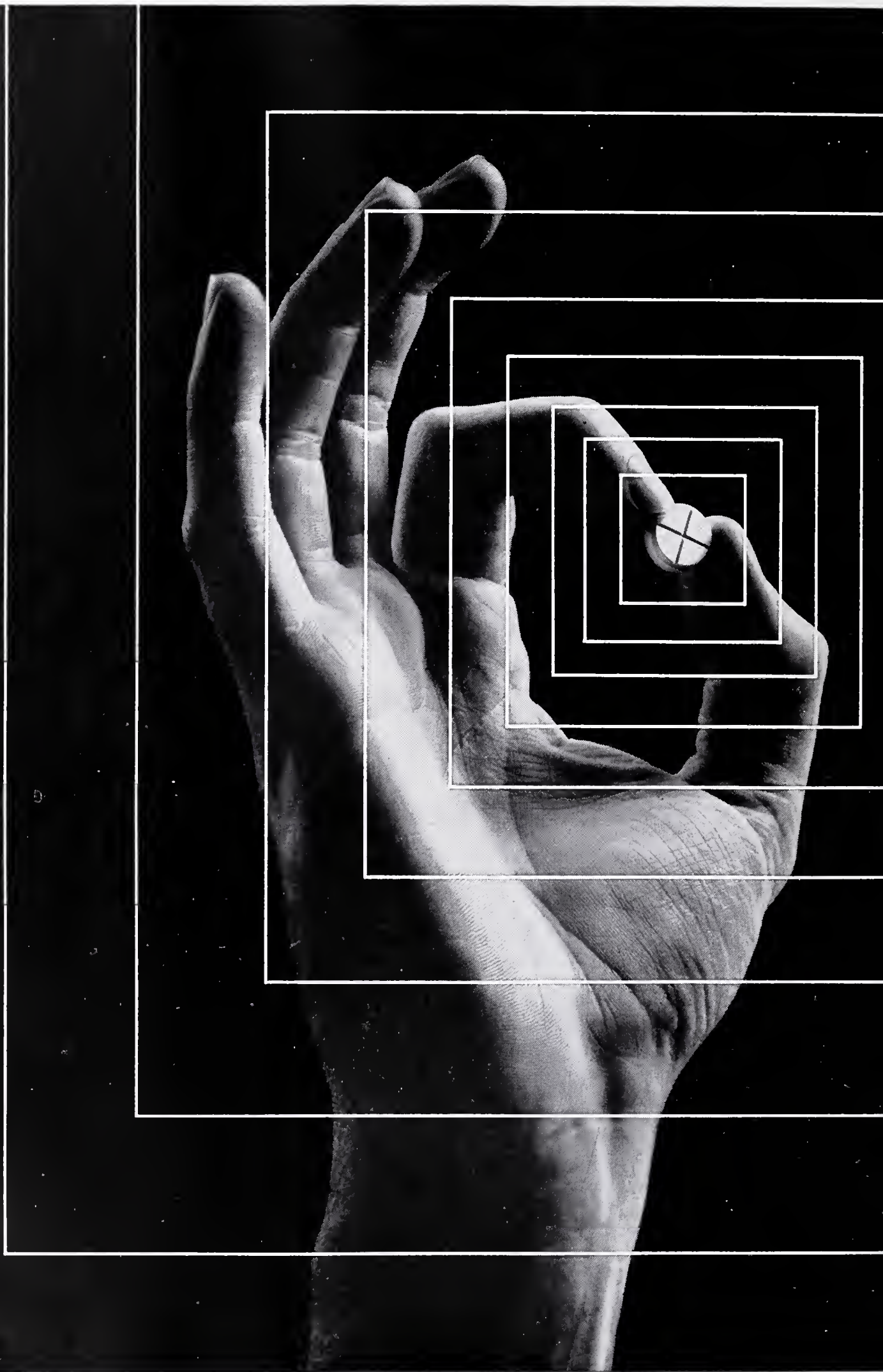
Mr. Chester Lauck, Executive Assistant, Continental Oil Company, who will serve as Master of Ceremonies at the Society's Annual Banquet. Mr. Lauck, a native of Allene and Mena, Arkansas, former banker and business man, is better known as "Lum" of the famous radio team "Lum and Abner". He is a graduate of University of Arkansas School of Journalism. His presence at the banquet promises a lively and entertaining evening.

**DANCING**

**9:00-1:00—Belvedere Country Club**

Admission to the dance is included in the price of the banquet ticket.





*a new era  
in sulfa therapy*

**ONLY ONE TABLET A DAY**



# KYNEX

SULFAMETHOXYPYRIDAZINE (3-SULFANILAMIDO-6-METHOXYPYRIDAZINE) LEDERLE

New authoritative studies prove that KYNEX dosage can be reduced even further than that recommended earlier.<sup>1</sup> Now, clinical evidence has established that a single (0.5 Gm.) tablet maintains therapeutic blood levels extending beyond 24 hours. Still more proof that KYNEX stands alone in sulfa performance—

- Lowest Oral Dose In Sulfa History—0.5 Gm. (1 tablet) daily in the usual patient for maintenance of therapeutic blood levels
- Higher Solubility—effective blood concentrations within an hour or two
- Effective Antibacterial Range—exceptional effectiveness in urinary tract infections
- Convenience—the low dose of 0.5 Gm. (1 tablet) per day offers optimum convenience and acceptance to patients

**NEW DOSAGE.** The recommended adult dose is 1 Gm. (2 tablets or 4 teaspoonfuls of syrup) the first day, followed by 0.5 Gm. (1 tablet or 2 teaspoonfuls of syrup) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive ¼ of the adult dosage. It is recommended that these dosages not be exceeded.

**TABLETS:** Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

**SYRUP:** Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.



**FOURTH GENERAL SESSION**

**Wednesday, May 7th**

**Main Ballroom, Arlington Hotel**

**John P. Woods, Mena, Presiding**

- 9:00- 9:05 Call to order, Invocation  
9:05- 9:25 "The Pathology of Chronic Ulcerative Colitis", Malcolm Dockerty, Mayo Clinic, Rochester, Minnesota  
9:30- 9:50 "Problems in the Management of Ulcerative Colitis", J. A. Bargen, Mayo Clinic, Rochester, Minnesota  
9:50-10:00 Questions and Answers  
10:00-10:30 Visit Exhibits  
10:30-11:45 Clinical Pathological Conference — J. A. Bargen, Malcolm Dockerty, Mayo Clinic, Rochester, Minnesota  
11:45-12:00 Visit Exhibits

**Wednesday Afternoon**

**2:00 P. M.**

**FINAL SESSION**

**HOUSE OF DELEGATES**

**Main Ballroom, Arlington Hotel**

**COUNCIL MEETING**

The new Council will convene for a brief reorganization meeting immediately following adjournment of the House of Delegates.

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**AMENDMENTS TO CONSTITUTION**

The following amendments to the Constitution of the Arkansas Medical Society, having been read and approved at the 1957 Annual Session, will be considered for final passage by the House of Delegates during the 82nd Annual Session:

BY-LAWS (designating number of members on committees and subcommittees)

CHAPTER VII — Section 1, 8, c (line 3) to add the words "and not more than twelve" after the word "each", so that it shall read: "The Committees shall consist of not less than six members each, and not more than twelve, with each president appointing one-third of the members of each committee for a three-year period" and adding: "Providing that sub-committees shall consist of three or six members, with each president appointing one-third of the membership."

## ANNUAL COMMITTEE REPORTS

### REPORT OF THE COMMITTEE ON RURAL HEALTH

BEN N. SALTZMAN, Chairman

The members of the Committee on Rural Health of the Arkansas Medical Society are John T. Herron, William A. Snodgrass, Jr., A. H. Maddox, L. E. Drewery, Duane E. Brothers, and Ben N. Saltzman, Chairman.

This year the Committee on Rural Health, in cooperation with the Advisory Committee, consisting of Charles R. Henry, Chairman; T. Duel Brown; C. A. Vines; Miss Helen Robinson; Mrs. Hazel Jorden, Mr. Waldo Frasier, John T. Herron; Mrs. Mason G. Lawson; Mrs. Jack W. Kennedy; Mrs. Gordon Oates; Mrs. Donald I. Purcell; Dr. William L. Cloud, Dr. Bryant B. Pake; Mr. Leo Bartholomew, Mrs. William Wilkie, and Mr. Charles Johnson have voted to forego an annual Rural Health Conference and instead will urge support for the 13th annual National Conference on Rural Health, to be held in Jackson, Mississippi, March 6 to 8, 1958.

Dr. William T. Snodgrass and Dr. Ben N. Saltzman, Chairman, attended a meeting of state rural health chairmen and committee members at Lafayette, Indiana, October 3 and 4, 1957, under the sponsorship of Dr. F. S. Crockett, Chairman of the Council on Rural Health of the American Medical Association. Several new ideas for furthering the work of the state rural health committees were adopted and plans have been made to put these into effect.

The committee feels that attendance at the National Rural Health Conference will broaden its scope and many fresh ideas will be incorporated into our next annual state rural health conference.

### REPORT OF THE CANCER CONTROL COMMITTEE

JEAN GLADDEN, Chairman

During the past year the Committee on Cancer Control has not met as a group. The members of the Cancer Control Committee however, are on the Board of Directors of the Arkansas Division of the American Cancer Society and during the past year this group has met on several occasions. At these meetings a majority of the members of the Cancer Control Committee have been present and have been most helpful in the deliberations of the Arkansas Division.

One of the things that has concerned us most has been the loss of the appropriation to the Cancer Commission. This appropriation was made by the last legislature and vetoed by Governor Faubus. Apparently the governor thought that if he vetoed this appropriation more funds would be available to the Welfare Department, which in turn would result in more matching funds from the Federal Government.

The Arkansas Division has been concerned with what will happen to the medically indigent cancer patients who are not eligible for welfare. It has been our impression that there are a considerable number of such patients and we are concerned as to whether they are receiving hospitalization when the need arises. It has been the contention of Welfare Department officials that more indigent cancer patients will be taken care of under their program which has been in effect since July 1, 1957. It is hoped that through the individual cooperation of the doctors in the State, by reporting such medically indigent cases to the Cancer Commission, that after a few months we will have some idea as to the number of cases that are medically indigent and yet do not come under the Welfare Program.

According to Mr. Bill Stapleton, Executive Director, Arkansas Division of the American Cancer Society, there has been an increase in the use of the professional education films during the past year. He attributes this to the efforts of the Cancer Control Committee as well as other doctors of the Arkansas Medical Society.

Recently the Board of Directors of the Arkansas Division of the American Cancer Society requested that the National Office of the American Cancer Society come to Arkansas to conduct a survey. The survey will include an investigation of the operation of the Arkansas Division as well as the Cancer facilities in Arkansas. The survey team will make recommendations to the Board of Directors of the Arkansas Division and those recommendations that the Board considers helpful will be put into effect.

### REPORT OF COMMITTEE ON PUBLIC HEALTH

BEN N. SALTZMAN, Chairman

The Committee on Public Health is composed of the following: Sub-Committee on Rural Health, Sub-Committee on Maternal and Child Welfare, Sub-Committee on Industrial Health, Sub-Committee on Tuberculosis, Sub-Committee on Mental Health, Sub-Committee on Liaison with the State Board of Health, and Polio Advisory Sub-Committee.

As has been customary in the past the reports of the various committees on Public Health will be submitted by the sub-committee chairmen. These reports will follow.

### REPORT SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE

FRANCES C. ROTHERT, Chairman

The Committee has had one meeting of all three members, and a number of informal conferences.

Two members attended the A.M.A. Conference on Physicians and Schools in Highland Park, and



have been active members of the Arkansas Joint Committee on School Health. The other is a member of the Board of the Arkansas Children's Colony.

A joint program on perinatal care was arranged between the Obstetric Society and the Academy of Pediatrics.

The State plan for Maternal and Child Health Services was submitted to the Committee. The Committee plans a Conference of Physicians and Educators at Mather Lodge, Petit Jean State Park, June 14th and 15th, to work on a section on School Health Services for a Manual on School Health for Arkansas, and to consider plans for increasing the physical fitness of Arkansas youth. Dr. W. W. Bauer, Director of the Department of Health Education of the American Medical Association, will be the principal Consultant. All interested physicians are urged to attend.

## COMMITTEE ON INDUSTRIAL HEALTH

ROY I. MILLARD, Chairman

We find the following situation according to our best information. (1) We know of no serious problems impending. (2) We feel that relations between the medical profession and the industrialists is fairly good. (3) We feel that the relations between the profession and the insurance companies is fairly good. (4) We would like to establish a little better relations between our profession and labor as a whole. (5) We find that as is always true, the Compensation Commission is still doing a good job. (6) The Arbitration Committee, which was set up partly through the efforts of this committee, is on the job and functioning well.

We would like to make the following recommendations:

- (1) We feel that the profession should do everything we can to continue good relations between industry and medicine.
- (2) We would like to improve the relations between our profession and labor.
- (3) We would like to urge that a course in industrial medicine be established in the University Medical School.

We have contacted the Council and hope that some action can be taken in the very near future. We would like to urge a post-graduate course of at least 1 day or possibly 2 every 2 years. We feel that this could probably be best done in connection with the insurance companies and the Medical School. This type of course has been presented before and has been quite successful.

## SUB-COMMITTEE ON TUBERCULOSIS

HARLEY C. DARNALL, Chairman

The Committee on Tuberculosis of the Arkansas Medical Society has been relatively inactive for the past year. Only one question was given consideration, and this was done through the mail. There have been no meetings of the committee.

## REPORT SUB-COMMITTEE ON MENTAL HEALTH

Wm. PAYTON KOLB, Chairman

The Sub-Committee on Mental Health of the Public Health Committee of the Arkansas Medical Society has met at intervals throughout the past year. No major action has taken place, however, many fields have been explored and many problems have been found that will require work.

The first, and felt to be the most important subject, was the increasing interest along the lines of education toward psychiatric matters on the part of doctors in other fields. In this regard attention is directed to the work being done by the Joint Committee made up of members from the American Psychiatric Association and the Academy of General Practice. It was felt by your committee that we could work to help sponsor and encourage post-graduate courses in Psychiatry set up for the General Practitioner, probably in conjunction with the Medical Center, and to encourage more articles in the State Journal from Psychiatrists on subjects of interest to the General Practitioner. Plans had been fostered for the possibility of working with the Medical Center on a post-graduate seminar in the Spring of 1958. In view of the tremendous interest shown in the seminar to be conducted by the Arkansas Commission on Alcoholism on April 17, 1958, and the very excellent program they have arranged, it was felt we should postpone our plans and work with them, as certainly the problem of alcoholism is very important to the General Practitioner. Further work along these lines will be conducted in the future.

The tremendous shortage of Psychiatrists in the State was discussed, and the problem will be looked into in the future as to the possibilities of alleviating this shortage. There is a tremendous need for Psychiatrists in our public hospitals, private practice, and in many of our other hospitals and institutions.

Your committee met with Mr. David Ray, who is the new Superintendent of the Arkansas Children's Colony. This meeting was very fruitful for both the committee and Mr. Ray, who incidentally brought Dr. Joe Eliot of the State Board of Health with him, and much was accomplished. Mr. Ray will need help from the State Society and it is certainly felt this is our responsibility. It is recommended by your Committee that we help him all that we can.

Your chairman attended the Fourth Annual Conference on Mental Health Representatives of State Medical Associations at the Drake Hotel in Chicago, November 22nd and 23rd, 1957. This was an excellent meeting and much was accomplished. The final prepared report has not been received as yet, however, it should be pointed out that the following four subjects were thoroughly discussed and many good ideas were presented:

1. "The role of the General Practitioner to the specific psychiatric case."
2. "Blue Cross-Blue Shield and other voluntary health insurance plans for the psychiatric patient."
3. "Relationship of the Psychiatrist in pri-

vate practice to the general hospital in his community."

4. "Psychiatric and related health problems in industry."

This conference made two specific requests.

The first request was that the Committees on Mental Health of the State Societies be made rotating, and not be appointed with every member for one year. It was pointed out that it was my understanding Arkansas already had this system. They also pointed out that they felt it would be wise if men from other fields of medicine and psychiatry were included on the Committees on Mental Health. Your committee had already discussed this and felt that this was wise also.

The second point brought out was that it was suggested a liaison be set up between the Committee on Mental Health of the State Society and the Committee on Mental Health of the Women's Auxiliary. This had not been discussed previously, but is felt to be an excellent idea and your committee intends to do this.

One other serious situation was discussed in committee and should be pointed out here. It is felt that due to the fact that most of the psychiatric activity in the State of Arkansas is either her State supported or supported by the Federal Government, the State Society would have to enter those fields in order to help provide the best care for the mentally ill of the State of Arkansas and for public health purposes. For this reason it was felt that it would probably be wise if this committee be made up of men not employed in a State or Federal position. We feel the political implication is clear in that situation. At the present time your Chairman and Dr. Simms of Fort Smith are the only members of the committee in private practice not employed by the State. Dr. Jones and Dr. Bennett are on the staff of the State Hospital and Dr. Reese is on the staff of the Medical Center.

At this time this committee would like to make only these specific recommendations for action at the annual meeting in May.

1. That in the future one or two members of this committee be from fields of medicine other than Psychiatry.
2. That when the present terms of the committee members employed by the State run out, that they be replaced by physicians not employed by the State or Federal Government.
3. It is recommended that we make ourselves aware of the new Arkansas Children's Colony, and to lend our support where needed as much as possible.

Your committee expects to continue to be very active and to bring further recommendations from time to time.

### **COMMITTEE ON LIAISON WITH ARKANSAS STATE BOARD OF HEALTH**

**JOHN T. HERRON, Chairman**

No matters have been brought before the Committee on Liaison with The State Board of

Health during the past year, and because of this reason this committee has no report on activities to make.

### **REPORT OF POLIO ADVISORY SUBCOMMITTEE**

**EUGENE H. CRAWLEY, Chairman**

Since our report in 1957 the state and local medical societies promoted and participated in a voluntary vaccine program with varying results from very excellent to poor or non-participation. We feel that the Arkansas Medical Society can take the major credit for the great drop in polio cases in Arkansas in 1957. This certainly is one of the great milestones of preventive medicine that does credit to American Physicians and his contribution to our American way of life.

The polio advisory subcommittee acted only in an advisory capacity in the vaccine program, working with the State Health Department and County Societies where requested. In this way we were able to aid in some of the publicity programs and in obtaining sources of vaccine.

In view of the statistics there is a great mass of the population in Arkansas yet unvaccinated and we urge a continual campaign on the part of all practicing physicians to urge and continually promote the polio vaccine for everyone under forty. This must be a continuous program or we will have polio with us again in strength.

The polio advisory subcommittee has had to obtain documentary evidence based on scientific studies as to when a booster polio vaccination was necessary. We have not been able to obtain it in view of the brief time elapsing since the discovery of the vaccine. In view of available evidence and the importance of the vaccine we are recommending that a booster of 1cc (one cc) of vaccine be given three years (3) after the third injection of the initial series of three shots.

### **REPORT OF THE COMMITTEE ON MEDICAL EDUCATION**

**JACK W. KENNEDY, Chairman**

The Committee on Medical Education was asked by the Medical Society to make a study of present financial conditions of the Medical Center and furnish such information to the Arkansas Legislative Council and Senator Lee Bearden, who had made a request for detailed information about the Medical Center. In following this study the Committee was represented at several meetings with members of the University of Arkansas Board of Trustees including Dr. John T. Caldwell and officers of the Medical Society and Medical Center Faculty. We also met with members of the Welfare Committee, State of Arkansas, at which time a satisfactory arrangement was made on methods of admitting welfare patients and category designations.

The first official meeting of the Medical Education Committee was held in November 1957 with representatives from the Medical Society, Legislative Council, Pulaski County Liaison Com-



mittee, F. Douglas Lawrason, Provost of the Medical Center. The agenda was as follows:

Discussion of the possibility of drafting a year-to-year budget for the Medical Center which would be submitted to the Arkansas Legislative Council.

Methods of admission were discussed and information received was that a bulletin would be published in the near future outlining procedures for better admissions by instructing the physicians over the state as to the problem of lack of beds at the Medical Center.

The President of Pulaski County Medical Society suggested that the Pulaski Society work with the Medical Center and local officials in arriving at some solution to the quota system. A letter was written the President of Pulaski County Medical Society endorsing such a plan. The Pulaski County Committee was asked to obtain information on local and state tax structures and investigate the Pulaski County financial responsibility to the Medical Center, also inquire about the cost and maintenance of a new County Hospital, which was proposed by the present County Judge.

A request was made to have the Medical Center draw up a basic budget to be presented at the next meeting.

On January 12, 1958, the Medical Education Committee met with representatives of the Legislative Committee of the Medical Society, Pulaski County Liaison Committee, Dr. Lawrason and Mrs. Cheatham, Chairman of Sub-Committee of the Advisory Board of the Medical Center.

The problem of the quota system was discussed by Dr. Lawrason with a "status quo" situation until the final court decree. The Pulaski County Liaison Committee requested the University Board of Trustees to advance hearings on the quota litigation and to inform the Governor and the Legislative Council that the quota and welfare programs had not provided the necessary financial support for the Medical Center.

In discussing the budget for the Medical Center it was pointed out that two wings to the present structure are committed to be activated for 1958-59. The cost of opening one wing will be \$180,000, but with the present budget no money is available. It was also noted that the peak of federal matching funds had been reached.

This Committee recognized that there is an urgent need for more adequate financing of the Medical Center and submits the following recommendations:

1. To help advance a decision by the Pulaski County Chancery Court on the 1957 Indigent Patient Quota Act.
2. Endorse the need for home rule legislation to remove tax ceilings imposed on municipalities.
3. That a commitment be obtained from Pulaski County, Little Rock and North Little Rock governments that they will cooperate by providing more local revenues for the Medical Center if the home rule legislation is passed.

4. That discussions be held soon with the Legislative Council and the Medical Center Advisory Board for further study and recommendations for the financial stability of the Medical Center.

This Committee also agreed that the present method of admitting medical students by congressional districts was inadequate and would be discussed and recommend definite changes later.

This Committee passed unanimously a resolution approving the construction of a new wing to the Medical Center for Clinical and Scientific Research. Finances for construction of such facilities would be derived from sources other than taxation.

The next regular meeting of the Medical Education Committee will be held at the Medical Center, February 23, 1958. This will include the Advisory Board of the Medical Center, Legislative Committee of the Medical Society and the Pulaski County Liaison Committee.

## REPORT OF COMMITTEE ON HOSPITALS

GUY SHRIGLEY, Chairman

This committee has had no matters requiring formal action presented during the past year.

Your committee stands ready to serve and act on any matters coming under its jurisdiction.

## ANNUAL REPORT OF LIAISON COMMITTEE WITH BLUE CROSS-BLUE SHIELD

SAM G. JAMESON, Chairman

There has been no formal meeting of the Liaison Committee since the last annual report. The principal objectives of the Committee have been ably carried out by the Professional Relations Department of Blue Cross-Blue Shield. These objectives include continuation of the Professional Relations Program with each county component of the Arkansas Medical Society. This program gives every member of the Arkansas Medical Society an opportunity to discuss problems with Blue Cross-Blue Shield representatives, and also the opportunity to suggest changes which might be advantageous for patients, physicians, and Blue Cross-Blue Shield. A number of suggestions that have become a part of the Blue Cross-Blue Shield program are as follows:

- I. Certificates Other Than Senior Certificates.
  - A. Option of having medical payments begin on first day of hospitalization in the amount of \$5.00, decreasing to \$4.00 the second day, and then to \$3.00 each day thereafter. It is realized that this is not adequate remuneration for treatment of some nonsurgical diseases, but it does distinctly prove that the Board of Trustees of Blue Cross-Blue Shield is cognizant of certain inequities between medical and surgical benefits, and is making an effort to provide more realistic coverage for nonsurgical care.

It is hoped that experience with this option will provide the necessary actuarial information to continue future improvements in this field.

- B. Full coverage of all diseases after one year, regardless of pre-existence.
- C. Optional availability of room coverage up to \$10.00 per day for individual contracts, and up to \$15.00 per day for group contracts.
- D. Decreased number required to form a group for deductible comprehensive contracts.

## II. Senior Certificates.

Ever since the organization of Blue Cross-Blue Shield in Arkansas, certificates have been available to all people under the age 65, and these certificates may be kept in effect until death, no matter what age is attained, except for non-payment of premium. Because of the lack of actuarial information concerning older age groups, none of the Blue Cross-Blue Shield plans in the United States or reputable commercial carriers have previously offered new certificates or new insurance coverage to the above 65 age group. Because of this lack of financial protection against sickness and hospitalization, the Federal government is using this segment of our population as a wedge to promote socialized medicine under the guise of increased social security benefits. In an effort to take constructive measures in this regard, the Arkansas Blue Cross-Blue Shield one year ago made new certificates available during the months of April and October to all individuals 65 years of age or older. This particular certificate is used exclusively with this age group, and although it does not offer as wide a range of benefits as standard certificates for individuals below 65, or for individuals above the age 65 who obtained their certificates before the age 65, it does provide realistic coverage for the premium received. Of utmost importance, it is noncancellable until death except for nonpayment of premiums. As experience with this plan increases, it is felt that actuarial information can be obtained which will eventually allow more benefits and better certificates for this age group, not only in Arkansas but in the entire United States. It is with pride that the Liaison Committee calls the Senior Certificate Program to the attention of each member of the Arkansas Medical Society, as the Arkansas Blue Cross-Blue Shield plan is one of the very first in the entire nation to take constructive action in providing health and accident protection for our older age groups.

In April, 1957, the Liaison Committee contacted each member of the Arkansas Medical Society who was not at that time a participating physician in the Blue Cross-Blue Shield program, offering a straightforward and reasonable explanation as to why each member should become a participating physician. The response to this request was excellent, with the result that every member of the Arkansas Medical Society is now a participating physician except a very small number who are not actively engaged in practice.

If the voluntary prepaid health insurance program is to be a successful alternative to government medicine, we as individual physicians should support this program wholeheartedly and offer constructive criticism whenever and wherever it is needed. It should be remembered, however, that benefits are in direct proportion to premiums paid, and the demands for increased benefits to be paid by Blue Cross-Blue Shield and commercial insurance carriers should not price voluntary health insurance coverage beyond the reach of the people who need it.

The Liaison Committee invites suggestions and/or criticism which might be relayed to the Board of Trustees of Blue Cross-Blue Shield for consideration. At this time the Committee feels that the program in Arkansas is progressing most satisfactorily.

## SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE

JOSEPH A. BUCHMAN, Chairman

During the past year I have checked on several occasions with the State Health Department and the State Civil Defense Department in regard to the work to be done by the State Medical Society in civil defense.

It has only been within recent weeks that they have definitely organized the department and planned any activity of this department. It is my feeling that this committee will in the near future have something to do, but until the State Civil Defense Committee is definitely organized there is nothing for us to do.

## REPORT OF SUB-COMMITTEE ON LIAISON WITH THE NURSING PROFESSION

HOYT CHOATE, Chairman

The nursing profession has been busy this year of 1957 in an endeavor to raise the standards of Nurse education and nurse practice. Much work went into formulating a new nurse practice act. The Advisory Committee consisted of people from all agencies interested in the nursing field, both laymen and professionals. The legislature would not accept a separate practice act for practical and for professional nurses, so it was sent back to be presented later after revision.

The survey of nursing needs and resources for Arkansas has been a big project. They are very grateful that the Arkansas Medical Society cooperated so efficiently in circularizing its entire membership, and at the expense of the Society. This survey is in its final phase now, and will be published soon.

The U. S. Public Health department gave fourteen hundred dollars from one of its nurse education funds, to study further nurse record keeping in Arkansas hospitals. Dr. Donald Steward of the University of Arkansas Sociology department is conducting this study for the Arkansas State Nurses Association.



The nurses of Arkansas are at work to raise the standards of their schools and of their professional work. They are busy and their accomplishments are outstanding.

### REPORT OF THE ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY OF THE ARKANSAS MEDICAL SOCIETY

LOUIS K. HUNDLEY, Chairman

During the past year the Auxiliary under the able leadership of Mrs. Jack Kennedy, of Arkadelphia, has been very active in all of their many projects. They have maintained close liaison with the A.M.A. Auxiliary, and have cooperated in nation wide programs. They have taken a renewed interest in legislation and worked closely with the Society's Legislative Committee during the past year. Their new publication, The Ark-Map, is an excellent news-letter, and in addition to its attractive appearance carries many items of interest to all.

Our Auxiliary is certainly to be congratulated on an active and profitable year. A detailed report of the activities of the president is attached hereto as a part of this report.

### REPORT OF WOMAN'S AUXILIARY TO THE ARKANSAS MEDICAL SOCIETY

MRS. JACK KENNEDY, President

In September a letter was written to Dr. T. D. Brown, President of the Arkansas Medical Society and Dr. J. M. Kolb, President of the Council of the Arkansas Medical Society asking if there were a special project in which the Society wished the Auxiliary's participation. There was none thus we have continued with our customary agenda. We have made progress in Auxiliary work this year. There have been two accomplishments, a printed newsletter instead of a mimeographed one. This was made possible by Blue Cross-Blue Shield of Arkansas printing and mailing the newsletter. ARK-MAP (Arkansas Medical Auxiliary Publication) was the name selected, having been submitted by Mrs. L. Gardner, immediate Past President. There have been two issues mailed to the entire membership. The other accomplishment was the Fall Conference or School of Instruction held September 10 for state and county officers and state and county committee chairmen. Informed speakers discussed Safety, Legislation, Recruitment for Health Careers, A.M.E.F., Community Service and Rural Health. The following doctors appeared on the program: Dr. Clyde Rodgers, Dr. F. Douglas Lawrason, Dr. Ben Saltzman, Dr. Louis Hundley, Dr. T. D. Brown. This took the place of four district meetings held last year. 59 attended, 16 component auxiliaries were represented, 30 of the 35 state board members and 10 past presidents were present.

"Health is a Joint Endeavor" was chosen as a theme for the year by Mrs. Paul C. Craig, President of the Woman's Auxiliary to the

A.M.A. She named as priority projects, A.M.E.F., Legislation, Safety, and Today's Health. Emphasis has been placed on these.

There have been two articles on Legislation in the ARK-MAP. Mrs. Hoyt Choate, Area Chairman of Legislation and Mrs. Paul Gray, State Chairman have done an excellent job keeping the counties informed about the Bricker Amendment, Social Security Amendments, Jenkins-Keogh bill and the Forand bill. In my visits I have explained the Forand bill and asked for its defeat as that was the most important topic discussed at the Conference for Presidents and Presidents-elect which Mrs. Gordon Oates and I attended in Chicago, October 21-23, 1957.

The Auxiliary has cooperated with all Health Agencies such as the Arkansas Mental Health Association, Tuberculosis Association, League of Nursing, etc., by sending representative to their meetings.

At the specific request of Dr. Hundley the Community Service (Public Relations) Chairman, Mrs. C. C. Long, sent out letters asking that Home Nursing classes be organized and participated in. This was thwarted due to the lack of qualified instructors.

In the early part of the year as state priority projects I named Recruitment for Health Careers and our own Ilse Oates Student Loan Fund. Mrs. Louis Hundley, Chairman of Recruitment presented an excellent panel at the Fall Conference, also prepared and distributed information about paramedical fields.

Mrs. Ray Fulmer, Chairman of the Ilse Oates Student Loan Fund has been very successful in collecting money for notes due, also through her efforts a contribution was made by the Arkansas School of Medicine Alumni Association in the amount of \$772.50. The total amount in the fund is \$9,201.16 with a bank balance of \$2,931.16. Two loans of \$400 each have been made this year and since the establishment of the fund over two hundred loans have been made.

To date I have attended the meeting of the A.M.A. in New York, Conference for Presidents and Presidents-elect in Chicago, held two board meetings and visited 18 auxiliaries. Mrs. Oates, President-elect has accompanied me on all but four visits. My reward, a feeling of warmth and cooperation.

Through the efforts of Mrs. Oates, January 16th has been scheduled to visit Searcy for the purpose of organizing White County.

Thus at mid-year I have a wonderful feeling of having contributed to the Auxiliary in Arkansas and wish to thank Dr. Hundley for his counsel and guidance.

### REPORT OF ADVISORY COMMITTEE TO THE ARKANSAS STATE MEDICAL ASSISTANTS SOCIETY

GEORGE C. COFFEY, Chairman

I attended the meeting of the house of delegates of the Arkansas State Medical Assistants on Jan. 26 and became acquainted with their

policies and purposes, by-laws, etc. and I made certain suggestions that I thought would be beneficial to their association.

I received the impression that the present officers and chairmen of the standing committees are doing a wonderful job. It is my further impression that the medical profession should become acquainted and more interested in the work being done by this association.

### **COMMITTEE ON SENIOR MEDICAL DAY**

**W. R. BROOKSHER, Chairman**

The continuing interest of the Senior Class of the University of Arkansas School of Medicine in the annual Senior Day sponsored by the Society warrants the venture. The program in 1957 was essentially the same as in previous years and it is contemplated that the 1958 Senior Day will be devoted to efforts on the part of the Society's representatives to bring to the attention of the Senior Class the aims of organized medicine, its duty to the public together with emphasis on the practical aspects of the profession of medicine in Arkansas.

### **COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS**

**JOHN M. HUNDLEY, Chairman**

The Committee on Veterans Administration Affairs has had no occasion to have a call to meeting, and I am happy to report that the relations of the veterans and the administration of hospitals and ancillary units seem to be considerably better than in past years.

### **REPORT OF THE COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION**

**C. R. ELLIS, Chairman**

Your committee has met in the Arlington Hotel at Hot Springs, Arkansas, a total of four times, each member attending at least one of these meetings and most of them attending all meetings. Our president, Dr. T. D. Brown, even though filling many speaking engagements, has met with us and assisted us greatly. We invited the immediate past president, the retiring committee chairman, the president-elect, and his proposed chairman for the 1959 assembly. Dr. Fount Richardson was with us on at least one occasion. Dr. Joe Norton has been of great value with his experience for the last two assemblies.

In preparation for arranging this program, we separated the discussions given before the society over the last five years into three categories: Medical, Surgical, and Obstetrical-Gynecological. We then divided the committee into three groups, assigning each group the task of obtaining speakers in one of these categories. We agreed after some discussion to have all speakers except one from outside this state; hoping thereby to attract a large attendance at the

general sessions. Each of these subcommittees selected speakers, but each speaker was approved by the committee as a whole before he was included in our program. These subcommittees were free to consult their friends among the specialty sections concerning subjects and men to discuss them; however, final approval was always left to the committee as a whole.

As you know, our Constitution and By-Laws limits each speaker to twenty minutes for presenting his formal discussion. In order to increase interest, and allow the speakers to emphasize some points of their subjects, we have allowed ten to fifteen minutes for questions and answers following each two presentations. We hope that this time will be used advantageously as questions are presented to the speakers in writing.

You will notice in the program outline appearing in this issue of the Journal that we have allotted a period during each general session for visiting the exhibits. Most of these exhibits will be within the lecture hall, separated only by heavy drapes from the speaking room. We hope that you will use this time to see the technical and scientific exhibits but will return to the lecture space for the scientific discussions. Those remaining in the exhibit area, we hope, will not be so noisy as to disturb the lecture.

We have arranged for a few things somewhat different from our meetings of recent years. We have asked the specialty sections to meet on Tuesday afternoon when we will have no general session, thinking that this would cause an increased attendance in both our specialty group meetings and our general sessions. Unfortunately, there are not enough large rooms available to accommodate all the specialty sections; however, there are spaces available within walking distance of the Arlington. We regret this shortage of space but could not avoid it. We do appreciate the cooperation of these specialty groups.

There has been some discussion during the last few years about our state society becoming large enough now to pay for its own social entertainment instead of allowing the host society to do so. This was not perpetrated by any host society but came rather from those who knew that it was a burden which we ourselves should assume. In accordance with this thinking, we have arranged for a "Dutch Treat" luncheon and party at the Majestic Lodge on Monday evening, May 5. We hope that this meets with your approval and that most of you will attend. There is no scheduled entertainment; but there will be facilities for fishing, boating, swimming, or just relaxing. This is the same type party at the same place that the Garland County Society arranged for us when we last met in Hot Springs.

We plan to have our inauguration ceremony for our incoming president during the banquet at the Arlington dining room on Tuesday evening, May 6. Since the entire floor of this dining room has been carpeted, we have reserved the Belvedere Club and an orchestra for those who desire more social activity after the banquet.

I sincerely appreciate the work of the mem-



ters of this committee, Dr. T. D. Brown, Mr. Paul Schaefer, and others who assisted us. They have worked diligently thus far and, I believe, will continue their faithful work through the numerous details necessary until and during the assembly.

We have arranged a program which, we believe, is the best possible with the crowded conditions present at Hot Springs and, which, we hope will be one of the best of recent years for our society. We urge you to attend and to be on time. The program must proceed on schedule or become so hopelessly "bogged down" as to confuse the speakers, the listeners, and the exhibitors. The moderator of each session will be definitely instructed to begin and end each discussion at the exact time specified in the program. We request that you be present at the exact time listed for a discussion you desire to hear.

### DELEGATE TO AMA REPORT

DR. R. B. ROBINS  
Camden, Arkansas

The Eleventh (Mid-year) Clinical Meeting of the American Medical Association was held in Philadelphia December 3-6, 1957 with over 2,500 physicians in attendance. The scientific program was richly rewarding. The outstanding actions of the House of Delegates had to do with fluoridation of public water supplies, free choice of physician, the Heller Report on organizational changes for the American Medical Association, the Forand Bill providing hospital and surgical benefits for Social Security beneficiaries, distribution of Asian influenza vaccine and guides for the medical rating of physical impairments.

Our noble President of the American Medical Association, Dr. David B. Allman of Atlantic City, called for "more freedom, not less, in America and in the medical profession." He urged doctors to embark on local action campaigns to oppose the Forand Bill which is the real entering wedge for socialized medicine in this country if such a bill were passed by Congress.

The most controversial issue settled at the Philadelphia meeting had to do with fluoridation of public water supplies. The House of Delegates approved a report which endorses the fluoridation of public water supplies as a safe and practical method of reducing the incidence of dental caries during childhood.

The House adopted a resolution condemning the current attitude and method of operation of the United Mine Workers of America Welfare and Retirement Fund "as tending to lower the quality and availability of medical and hospital care to its beneficiaries."

Detailed reports on the various actions of the House of Delegates have been published in the Journal of the American Medical Association and need not be reported in detail in this report.

On the second afternoon (Wednesday, December 4) from 4 to 6 p. m. the Arkansas Medical Society held a reception for the members of the House of Delegates and the officers of the American Medical Association. Some 200 people

were in attendance. The reception was held in the Burgundy Room of the Bellevue-Stratford Hotel which was the headquarters hotel at the convention. A beautiful flood-lighted Arkansas exhibit furnished by the Arkansas Publicity and Parks Commission was in the front of the room and attracted considerable attention from the guests. All guests were presented with an individual Diamond Hunting License which was an invitation to come to Arkansas and hunt diamonds. This novel idea was well received and commented upon by all the guests. A very talented accordionist furnished delightful music during the time of the reception. All Arkansas people who attended were well pleased with the Arkansas reception and it was the consensus that it created very favorable good-will toward our state.

It is always disappointing that more Arkansas physicians do not attend the AMA meetings. These meetings are the most outstanding medical meetings from an educational standpoint that are held in this country—really in the world. It is urged that more members of the Arkansas Medical Society plan to attend the coming AMA convention which will be held in San Francisco June 23-27. An Arkansas breakfast will be held the first morning (June 23) at the Palace Hotel for the members of the House of Delegates and the officers of the AMA as well as for all Arkansans who are in attendance.

### ARKANSAS STATE ADVISORY COMMITTEE TO THE SELECTIVE SERVICE SYSTEM GERALD H. TEASLEY, Chairman

The Arkansas State Advisory Committee to the Selective Service System disbanded this past summer. Our records were turned over to the Selective Service System for storage and use as they saw fit.

The National Advisory Committee complimented the members for their activity and expressed appreciation for their cooperation and help.

Since there is no reason for this committee to exist under the present Selective Service System regulations, it is suggested that the committee be disbanded by the Medical Society and the members thanked by the President of the Society for their excellent work. The requests sent to the physicians throughout the state for information concerning the availability of physicians for active duty often required considerable time and expense to investigate. On no occasion did the Chairman of the Committee have any undue difficulty in obtaining recommendation to be forwarded to the Selective Service System. The success of the committee was due to the unselfish interest on the part of the members of the committee who cooperated so well with the Chairman.

### THE ARKANSAS STATE CANCER COMMISSION W. R. BROOKSHER, Secretary

During the fiscal year ending June 30, 1957, a total of 1,627 patients came under the service of

the Commission. Of these, 819 were new patients; 471 received hospitalization and 225 received domiciliary care, the latter with funds provided by the Arkansas Division, American Cancer Society. Because of inadequate funds, it was necessary to suspend hospitalization for three and one-half months of the fiscal year. All counties in the state were represented in the case load. The seven permanent tumor clinics continued operation and the usual services of the Central Cancer Registry and allied functions of the Commission were carried out.

Effective July 1, 1957, funds made available to the Commission for hospitalization of indigent cancer patients were transferred to the State Department of Welfare by a line-item veto of Governor Faubus. This has necessitated a material change in the provision of hospitalization to indigent cancer patients, who formerly were hospitalized on the simple authorization of the attending physician who certified their inability to pay for such hospitalization. Under the present plan, only clients of the Welfare Department are allowed such hospitalization. Studies are in effect to determine wherein there is denial of hospitalization under this plan as contrasted with the previous policy of the Commission, and while figures are not yet available, sufficient data has been accumulated to indicate to the Commission that every effort should be made in the next legislative session to restore the previous plan of Commission authorization of hospitalization to those in need.

REPORT OF THE ARKANSAS STATE  
MEDICAL BOARD  
JOE VERSER, Secretary

The Secretary of the Arkansas State Medical Board makes the following report of the activities of this Board since the last meeting of the Arkansas Medical Society:

The Officers and Members are as follows: G. D. Murphy, Jr., M. D., Chairman; Wm. A. Snodgrass, Jr., M. D., Vice-Chairman; Joe Verser, M. D., Secretary and Treasurer; H. J. Hall, M. D.; Frank M. Burton, M. D.; Jeff Baggett, M. D.; C. H. Young, M. D.; J. Max Roy, M. D.; Hugh R. Edwards, M. D.; Mr. Eugene R. Warren, Attorney.

The Board investigated every case of violation of the Medical Practice Act reported to the Secretary during the year. Four court convictions were obtained and two cases are now pending.

Through the combined efforts of the Arkansas State Medical Board and the Arkansas Medical Society, a new Medical Practice Act was enacted at the last session of the Legislature. This Act has proven invaluable to the Board in obtaining court convictions and helping the Board rid the state of quacks and charlatans.

The Board revoked the licenses of James Bockman and Marcus Jiminez upon evidence presented that their licenses had been obtained through fraud a number of years ago.

The Board is disturbed over the reported gross cheating on the Arkansas Basic Science Examinations, and further disturbed over the fact that 430 applicants took the June Basic Science examination. Out of this 430, less than 100 were medical students or M. D.'s—the other 330 being out-of-state applicants who are students or practitioners of the other healing arts. It has been further established that these out-of-state applicants are from distant states which have their own Basic Science Boards. The question arises: Why these applicants travel several hundred miles to take an examination before the Arkansas Basic Science Board rather than take the examination in their own states?

A yearly financial report of the Board's activities, as prepared by Winter, Johnston & Company, Certified Public Accountants, was sent to and approved by the Council of the Arkansas Medical Society and published in the Journal.

Following is a report of the Board's proceedings from February 1, 1957 to February 1, 1958: Physicians registered for 1958:

Resident .....	1,451
Non-resident .....	650
Physicians licensed by examination .....	81
Physicians licensed by reciprocity .....	28
Physicians certified to other states .....	56
Licenses revoked for non-payment of annual registration fee .....	31
Licenses suspended for non-payment of annual registration fee .....	47
Court convictions obtained for violation of Medical Practice Act .....	4
Cases pending for violation of Medical Practice Act .....	2
Licenses revoked .....	2

Following is a financial report covering the period February 1, 1957 to February 1, 1958. A yearly audit by a C.P.A. will be made in June, 1958.

Cash balance in bank— February 1, 1957 .....	\$12,566.08
Bonds and Time Deposit .....	8,120.00
Receipts:	
Registration fees .....	\$6,258.00
Reciprocity fees .....	4,003.00
Certification fees .....	780.00
4-Yr. Examination fees .....	775.00
Final Examination fees .....	1,712.50
Primary Examination fees .....	1,750.00
Duplicate Certificates .....	10.00
Directory sales .....	136.00
Physical Therapy fees and dues .....	200.00
Temporary permits .....	35.00
Certification to Basic Science Board fees .....	55.00
Re-deposits, postage, etc. ....	113.00
Interest on Bonds .....	122.40
	15,949.90
	<hr/>
	\$36,635.98



Disbursements:

Salaries—Secretary and assistant, Withholding & FICA taxes, and expense of Board Members.....	8,429.63
Attorney's fee, expense and investigations.....	2,695.05
Dues to Federation of State Boards of U. S.....	100.00
C. P. A. Audit.....	175.00
Refunds—fees.....	44.00
Office rent, supplies, printing, telephone, postage, bond directories, etc.....	2,379.80
	<hr/> \$13,823.48
Disbursements.....	\$13,823.48
Cash balance— February 1, 1958	14,570.10
Bonds and time deposit.....	8,242.40
	<hr/> \$36,635.98

# ARKANSAS STATE BOARD OF HEALTH

JOHN T. HERRON, State Health Officer  
VITAL STATISTICS

The Bureau of Vital Statistics was established by Act 96 of 1913. It is charged with the filing, compilation, analysis, presentation, and distribution of statistical events which include births, deaths, fetal deaths, marriages, divorces, annulments, legal separations, and adoptions.

A total of 42,898 births were recorded in the calendar year of 1956, representing a rate of 24.1 per 1,000 population. 15,283 deaths were recorded, showing a death rate of 8.6 per 1,000 population.

The ten principal causes of death for 1956 were as follows:

Cause of death	Total	Rate per 100,000 Pop.
1. Heart disease (all forms)	5,653	296.0
2. Neoplasm (cancer).....	2,189	114.6
3. Vascular lesions affecting central nervous system.....	2,054	107.6
4. Accidents (all forms).....	1,177	61.6
5. Pneumonia & Influenza.....	522	27.3
6. Nephritis & Nephrosis.....	287	15.0
7. Tuberculosis (all forms).....	247	12.9
8. Immaturity (prematurity).....	225	11.8
9. Birth injury, asphyxia, and infection of newborn.....	217	11.4
10. Diabetes.....	198	10.4

Local registrars representing all districts in the State file certificates each month. Consolidation of districts has brought about a further reduction of registrars, which now total 258. At a rate of 25 cents for each completed certificate filed, a total of \$15,748.50 was paid to these registrars for their services during the fiscal year of 1956-1957.

Contact is maintained constantly with local registrars, physicians, midwives, county health departments, undertakers, and hospitals in order to stimulate registration of births and deaths.

All certificates of birth, death, stillbirth, marriage, and divorce are bound in volumes, indexed, and tabulated. Microfilm copies of all certificates of birth, death, and stillbirth; photostatic copies of all certificates of birth, death, and stillbirth which occurred within the State but of legal residence outside the State; and a ten per cent sample of all deaths are mailed to the National Office of Vital Statistics, Washington, D. C.

All deaths are coded as to primary statistical cause according to the rules of the *Manual of Joint Causes of Death* and set forth in the *International Statistical Classification of Diseases, Injuries, and Causes of Death*.

10,876 delayed certificates and 17,289 prior-to-1914 certificates of birth were placed on file during the year 1956.

During the fiscal year 1956-1957 a total of approximately 119,000 requests were received. This includes certified copies of records, verification of records, and checking of records. Approximately 15,000 corrections were made. The legal fee for a certified copy, effective as of February 12, 1955, is \$1.00. Fee for verification and checking of records is \$.50.

Requests made by telegram and long distance telephone are given special attention. Assistance is given also to residents of Arkansas who were born in another state, in filing of the record in those States.

13,947 marriages and 4,780 divorce records were filed. This is a ratio of 2.92 marriages to one divorce. We are current in our alphabetizing, numbering, and binding of marriage and divorce records.

## HOSPITALS

During 1957, the Division of Hospitals licensed 146 hospitals and 82 nursing homes. Several new hospitals and nursing homes were licensed and several old ones closed. The annual revision of the "State Plan for the Construction of Hospitals and Related Facilities" was made, as required under the Federal (Hill-Burton) Hospital Construction Program.

Two hospitals, one addition to a hospital, one nursing home, and one diagnostic and treatment center were completed during 1957. At the end of 1957, the Division had 18 active Hill-Burton projects with about one-half of these projects nearing completion.

Also, plans and specifications for four sizable hospital additions (with construction costs paid entirely from local funds) have been reviewed by the Division. Construction of one of these additions is complete.

## LOCAL HEALTH SERVICES

Although there has been a slight gain in the number of full-time professional public health workers in local health units since the last annual report, the total number of such workers on duty is still far from adequate. Modest salary range revisions have enabled us to recruit a few more nurses and physicians to serve local health units.

At present local health unit staffs are approximately 50 per cent of what they should be to

render minimal adequate public health services to the population served. Several local communities are keenly interested in expanding local health services by the employment of additional workers through increased local funds, and by providing improved housing for existing local health units.

The general trend nationally indicates that federal funds allocated to the states for general public health purposes will be further reduced from the present inadequate level, to further bolster national defense. Since the protection of the public health of a state, county, city, or community is the legal and moral responsibility of those units of government to its own people, it will be necessary for them to provide increased local funds, to support local public health programs.

It is gratifying to state that all of our seventy-five counties are interested in active public health programs and services. However, it is an unfortunate that seven of our counties are, at present, without any local public health services, except certain direct services rendered by the state office. The principal reason for this deficiency is the fact that professional workers are not available in those counties.

#### PUBLIC HEALTH EDUCATION

The personnel of the Division, in addition to the Acting Director, is as follows: One trained public health educator, one film library clerk, one film library technician, and one full-time and one part-time stenographer.

Because of the lack of additional personnel, priority has been given to the procurement and organization of educational materials. This is with the idea that, if a wide selection of good materials is readily available and is well annotated, each person on the public health team will do a better job on utilization of the materials in his particular field.

In terms of health education benefits to the public, our most important activities at present are the improved and extended service being rendered directly by the film library, and the more efficient service rendered local health departments in keeping them supplied with stocks of literature. With regard to the film library, scheduling is running about one-third over last year's scheduling. A good part of this rise is accounted for by increased bookings by churches.

#### COMMUNICABLE DISEASE CONTROL

The outstanding gain in the disease prevention program during this period was the lowered incidence of acute anterior poliomyelitis, both paralytic and nonparalytic. There can be little doubt that these savings can be in large part attributed to the use of Salk poliomyelitis vaccine. In those areas where the Salk vaccine was used rather generally, the greatest gains were made. In some areas where Salk vaccine was not so well accepted and administered, polio continued to occur at about the same level as in previous years. There are still areas of the State where the under-20-years-of-age group has not been adequately protected. Since reports of administration of polio vaccine to those over 20 years

of age are not received in this department the polio vaccination status of this segment of the population is not known. In several of the larger areas vaccination programs for this group were carried out by the county medical societies. In those areas, the State Health Department provided syringes and needles, through the local health units. Polio is occurring in the unvaccinated and particularly in the preschool age group.

Another gain of importance in preventive medicine has been the more successful identification of chronic typhoid carriers. This is to be expected with the decreasing frequency of reports of typhoid fever. The source (carrier) is more easily found when fewer cases of the disease occur.

In order to comply with postal regulations it was necessary at the first of the year to change the morbidity reporting system. Previously, reports were gathered locally and the system was changed to a central reporting one in the Division of Communicable Disease Control. As in any change of a long established system, some difficulties have been encountered, but it is expected that as time goes on these difficulties will be overcome.

The work connected with the diseases of animals transmissible to man was improved during the year by the employment of a well-qualified veterinarian who came to us after thirty years with the U. S. Army.

Since the assignment of this Veterinarian the major problems in connection with diseases of animals, which are infectious to man, have been carefully investigated. Rabies in domestic animals, particularly pets, remains the number one problem in that category of animal diseases. For the most part, the larger cities have an adequate control and dog vaccination program. It is the smaller communities and rural areas that present the most serious rabies control problem. This situation is true because fewer dogs are immunized against rabies and because of the lack of control measures for elimination of stray dogs. An educational program has been pursued continuously by public health personnel to increase the number of dogs given anti-rabies vaccine. In addition, at the request of local officials, quarantine measures have been employed at various times in an effort to prevent the spread of rabies in dogs. All animal bites involving individuals present a serious problem until the danger of rabies infection has been removed. A great deal of assistance was provided to exposed individuals and private physicians throughout the year relative to the proper evaluation to place on animal bites. Such assistance included advice on whether or not to take or administer, the Pasteur treatment and the proper disposition of the animal in question.

A case of clinical anthrax was investigated in a veterinarian located in southeastern Arkansas. At the time of the investigation the source of the anthrax infection was not fully determined. However, it is interesting to note that in about three to five weeks after the appearance of this case of human anthrax, there



was an outbreak of anthrax in livestock in the same general area.

A number of cases of brucellosis (undulant fever) have been reported from various parts of the state. These cases of undulant fever are usually confined to individuals who consume raw milk or who constantly work with livestock in some manner. It is believed that the Brucellosis Eradication program in livestock which is presently being conducted by other State and Federal agencies will do much to reduce the number of human cases of brucellosis.

The animal morbidity report, which is a monthly publication of data collected on the occurrence of animal diseases in Arkansas, has expanded to include veterinarians who are new arrivals. It requires constant encouragement by every means possible with the participating veterinarians for the animal disease reporting program to be successful. This was accomplished by letters, personal visits, and by giving appropriate talks at professional meetings.

#### TUBERCULOSIS CONTROL

Under the direction of the Division of Tuberculosis Control 14,483 known cases of tuberculosis throughout the State received supervision in the calendar year 1957. There were 1,099 new cases reported to the Division within the year, the great majority of which were reported by private physicians. This morbidity rate of 57 per 100,000 represents the first substantial decrease in several years, but like the death rate still remains significantly higher than the National level.

Mass x-ray survey activities conducted by the Division continue, since the danger from tuberculosis remains far greater than any radiation hazard. In 1957, 191,955 films were taken, of which 566 were judged to show some evidence of tuberculosis and 1,017 of other chest pathology. 160 of our newly-reported cases were found as a direct result of this survey activity.

There are hospitalization facilities within the State for only about 1/10 of the known cases of tuberculosis; therefore, the bulk of responsibility for medical supervision of these cases must rest upon local physicians. The Division of Tuberculosis Control was able during the year to give guidance to three chest clinics for the continuation of this program of diagnosis, treatment, and adequate supervision of the tuberculous sick at home; it is hoped to broaden the program in the coming year.

#### VENEREAL DISEASE CONTROL

The fiscal year 1957 venereal disease prevention and control program was based upon a) case finding through contact interviewing and investigation, selective blood testing; b) diagnosis and treatment through public and private means; c) venereal disease education. The Prevention and Control Center has been maintained in Little Rock for these and other services.

Venereal disease morbidity reporting for 1957 indicated a continuation in the upward trend which began in 1954. In 1957 there was a 28.1 per cent increase over 1956. In 1957 primary and secondary syphilis increased 12 per

cent, while gonorrhea showed an increase of 47.5 per cent over 1956. Statistical data indicates an increase of 7.3 per cent of gonorrhea among teenagers 11 to 19. The increase in number of new cases of gonorrhea was in part due to improved reporting by private physicians. These figures become even more significant when compared with figures of 1954, the year of lowest venereal disease morbidity since World War II. There was a 60 per cent increase in primary and secondary syphilis and a 226 per cent increase in gonorrhea in 1957 by comparison to 1954.

#### MATERNAL AND CHILD HEALTH

The Division of Maternal and Child Health rendered service to mothers and children through clinics conducted by local physicians; classes and home visits by public health nurses; Institutes on Obstetrical Nursing and on Child Feeding; workshops on school health; screening programs for hearing and vision defects among school children; consultation on MCH problems, including nutrition and safety; midwife control; and through lectures, films, and distribution of popular literature, in addition to operating a Children's Hearing and Speech Center, and a Child Development Center for evaluation of children thought to be mentally retarded.

In the 1956-57 school year, 53,000 children in 37 counties were given hearing tests, with 1,400 referred for medical attention; 57,000 in 50 counties were tested for vision difficulties, with 4,000 referred.

The Hearing and Speech Center served 496 children from 62 counties in 1957.

In the six months the Child Development Center was in operation, 95 children from 30 counties were examined for possible mental retardation, with counseling services to parents of all children examined.

Active midwives decreased from 1,143 with 7,701 deliveries ten years ago, to a tentative figure of 374 with 3,573 deliveries in 1957.

The Nutrition Service furnished more than 350,000 pieces of nutrition literature and diet sheets to physicians in the state by request. The Consultant distributed Diet Manuals to 61 junior medical students and gave instruction in their use; took part in all Institutes conducted by the Division; assisted with orientation of public health personnel; and made 26 consultation visits to local health units.

#### HEART DISEASE CONTROL

Physician education, public education and community services in heart disease control continue to show definite improvement as a result of the combined efforts and close cooperation of this department, the Arkansas Heart Association, the Department of Cardiology, University of Arkansas School of Medicine, the Arkansas State Medical Society, local medical societies, and certain civic organizations. Significant progress has been shown in meeting this basic need during the past twelve month period.

Local part-time diagnostic and treatment clinics are now in the process of being established in several areas of the state upon the request of local medical groups. Standards of operations

are in keeping with the policies of the American Heart Association. The clinics are staffed by local physicians on a voluntary basis. Through Federal grant-in-aid funds the Arkansas State Health Department provides the scientific equipment on loan to the Arkansas Heart Association, and that association provides the necessary office equipment, personnel, and forms.

Patients are referred to the clinics by physicians and local health units and must be medically indigent. As of this date two heart clinics are in operation, one at the University of Arkansas School of Medicine, and one in the Davis Hospital at Pine Bluff, Arkansas. Additional clinics are planned for Hot Springs, Arkansas, Fort Smith, Arkansas, and either the Jonesboro or West Memphis, Arkansas areas.

This department continues its financial assistance to the teaching clinic for cardiacs at the University of Arkansas School of Medicine. Federal grant-in-aid funds are used for the purpose of providing certain clerical and professional salaries in the clinic. On an annual basis some 2,000 patients are benefited by services rendered by this clinic.

Public educational activities, materials, films, and pamphlets, etc., are being improved and further expanded. The Division of Public Health Education coordinates and distributes numerous films and pamphlets throughout the state on the request of authorized recipients.

#### MENTAL HEALTH

Mental health services in the state on both a state and local level continue to be inadequate. Plans to employ a full-time psychologist to head up the Division of Mental Health are still in effect. Several local part-time clinics are needed in certain population areas of the state for diagnostic, consultative, preventive, and possibly treatment purposes. In view of our present inadequate Federal grant-in-aid funds the early establishment of such clinics is prohibitive. It is the opinion of authorities in this field that such well-staffed clinics would greatly reduce mental illnesses in our population and eventually reduce the patient load of our mental hospital facilities.

During the year this department continued to support the all-purpose out-patient mental hygiene clinic located at the University of Arkansas School of Medicine. Federal grant-in-aid funds were used to provide salaries of personnel assigned to the clinic. The clinic continues to operate on a 44-hour weekly schedule interviewing referred patients or potential cases from all sections of the state. During the year more than 2,000 patients were interviewed in the clinic.

Public education in the field of mental health is being expanded and improved. The Division of Public Health Education supervises and coordinates the wide distribution of excellent films and literature for public information. The demand for films and literature in this field is rapidly increasing.

#### PUBLIC HEALTH NURSING

During 1957 a total of twenty-five (25) nursing placements were made. They were distributed as follows:

Appointments to fill vacancies	19
Appointments to fill new positions	1
Appointment as clinic nurse	1
Transferred to another local health dept.	3
Temporary assignments	1

In addition to the above placements, two (2) counties have employed a part-time clinic nurse as a temporary measure until a full time nurse can be secured to fill the existing vacancy in their county.

As of December 31, 1957, there were 114 nurses employed. Fifteen (15) counties of the seventy-five (75) counties are without public health nursing service and three (3) vacancies exist on the state staff.

Four (4) nurses returned from educational leave in 1957. Eight (8) are on educational leave at present. Five (5) of these have been given a state scholarship for a year's study in public health nursing.

One of the outstanding needs of the Division of Public Health Nursing is to be able to give more adequate consultation and supervisory assistance to the local nurses. This need is especially great when new nurses are assigned to departments which do not have a local medical director, and are not assigned to a local supervisor.

#### DENTAL HYGIENE

The Division of Dental Hygiene, in cooperation with the Arkansas State Dental Association, planned the successful Second Biennial Dental Health Conference at Petit Jean State Park, June 15-16, 1957. An interesting feature was the nutrition phase which emphasized a sugar-free diet for all participants during the two-day conference. Many hours were consequently devoted to discussions with Health and Education Department personnel concerned, as well as with key members of the dental profession in discussion groups, leading to the publication of "A Guide for Dental Health Consultants."

The Division has maintained continuous liaison with various individuals and agencies. Every effort has been made in the direction of the employment of a full-time Director in the Division of Dental Hygiene. This remains as the outstanding problem of the Division. Until further and definite progress in this direction is made, the Division will be obligated to continue in a sub-normal capacity. In the meantime, the expansion of programs in Public Health Dentistry in Arkansas will remain comparatively static.

#### SANITARY ENGINEERING

The engineering services in the control of environmental sanitation include the operation of the Divisions of Food, Drug and Milk Control, Dairy Products, Stream Pollution Control, Plumbing, and Malaria Control.

There are 220 public water supplies in Arkansas serving approximately 47 per cent of the population. Improvements to public water supplies totaled 116 plans, including new treatment plants at Osceola, Brinkley, Stuttgart, Bearden, Stephens, Rogers, and Gentry. The estimated cost of improvements totals \$11,300,000. 137 sewer-



age systems now serve approximately 36 per cent of the population of the state.

Sixty-five sewerage systems improvements were completed, totaling \$3,850,000, including sewage treatment plants at Blytheville, Booneville, Malvern, Mena, and Marshall.

The Bureau of Sanitary Engineering conducted short schools for water and sewage works operators as well as one for swimming pool operators.

In plumbing, revisions of the State Code were accomplished, bringing the Code up to date. Extensive work was accomplished in a series of short schools. The Division supported by license fees, now has 293 apprentices registered; 857 journeymen, and 988 master plumbers licensed. A total of 78 plans for schools were reviewed during the year.

The Food and Drug Division continued its fine work despite personnel losses. 177,203 pounds of cereal products, 2,498 cases of canned goods were found to be unfit for human consumption and destroyed. In addition, food and drugs damaged by fire were removed from market channels. Numerous food handler schools were conducted.

The Dairy Products Division licensed and inspected some 892 establishments engaged in the manufacture or retailing of dairy products.

In Water Pollution Control the survey of all sources of pollution in the Lower Ouachita Basin was completed. Some 13,000 separate analyses were conducted during this survey. Hearings on the LaPile and West Two Bayou Basins were conducted. Under Public Law 660, 20 applications for funds to construct sewage treatment works were processed and plans reviewed.

Considerable time and personnel were utilized in mosquito survey, larvicide and adulticide activities during the flood conditions that existed in the Spring of 1957.

Generally, personnel problems were not as critical except in the Food, Drug and Milk Control, Dairy Products, and Plumbing Divisions. Replacements have been found to assist the Dairy Products Division while the other positions are still unfilled.

#### STATE HYGIENIC LABORATORY

The staff of the Bureau of Laboratories during this fiscal year consisted of the director, three chemists, two bacteriologists, two serologists, four technicians, five laboratory aides, and six clerical personnel.

During this year the number of specimens received increased by 8,994 and the number of tests and determinations increased by 11,786.

A general summary of the year's work is given below:

	This Year 1956-57	Last Year 1955-56
<b>CHEMISTRY</b>		
Total samples received.....	1,323	856
Total determinations made.....	11,062	7,308
<b>BACTERIOLOGY</b>		
Total specimens received .....	34,768	29,727
Total tests performed ... ..	54,862	43,672

#### SYPHILIS SEROLOGY

Total specimens received .....	146,174	143,688
Total tests performed .....	264,387	276,545
<b>TOTAL SPECIMENS</b>		
<b>RECEIVED IN ALL</b>		
<b>DIVISIONS</b> .....		
	183,265	174,271
<b>TOTAL TESTS PERFORMED</b>		
<b>IN ALL DIVISIONS</b> .....		
	330,311	318,525
<b>SUMMARY OF PREMARITAL BLOOD TESTS</b>		
<b>FOR SYPHILIS IN ARKANSAS</b>		
	Weakly	
	Positive	Positive
<b>TOTAL</b>		
Bureau of Laboratories,		
ASBH .....	337	310
15,013		
Private Laboratories		
approved by ASBH .....	115	53
13,623		
Approved Laboratories		
in other states .....	21	4
639		
<b>TOTALS</b> .....	473	367
	(1.6%)	(1.3%)

#### REPORT OF FIRST COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE R. C. SHANLEVER, Chairman

During the past year this District has been asked to review and adjust one complaint, which involved a Medicare case. Recommendations for adjustment were made and accepted. We feel this speaks very well for the First Councilor District.

#### REPORT OF SECOND COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE O. J. T. JOHNSTON, Chairman

The only activities to have had in this district as a Professional Relations Committee was that we had a dinner date with the legal profession and at a later date we had the legal profession and their wives as our guests at a dinner.

#### REPORT OF THIRD COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE M. C. JOHN, Chairman

During the past year there have been no complaints brought to the attention of this committee in the Third Councilor District.

#### REPORT OF FOURTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE H. T. SMITH, Chairman

There has been no activity of the Fourth Councilor District Society during the past year—everything is going perfect.

**REPORT OF SIXTH COUNCILOR  
DISTRICT PROFESSIONAL  
RELATIONS COMMITTEE**  
R. R. KIRKPATRICK, Chairman

Our Committee has been fortunate in that only one question has appeared before us this year. It was a question of charges for Medicare. I had a conference telephone with Dr. Hirst and Dr. Martindale, the other two members on this committee, regarding this case and found that the approved rate for the work done was \$115, whereas a charge of \$50 was all that was made. We felt this was very reasonable and approved it.

This has been the only question that has come before this committee this year.

**REPORT OF PROFESSIONAL  
RELATIONS COMMITTEE  
SEVENTH COUNCILOR DISTRICT**  
JACK W. KENNEDY, Chairman

Only two cases were presented during the past year and both were settled locally. The first complaint was from Garland County by a man who considered he was charged excessive fees by a specialist who had to submit a court report as well as care for the injured patient. Investigation proved the plaintiff wrong without calling a meeting of the Professional Relations Committee. This was referred to the involved physician and dismissed.

The other case also involved a man from Hot Springs who had written a letter to the A.M.A. which subsequently was brought to this committee's attention. The complaint was allegedly exorbitant charges by a physician in Hot Springs. After thorough investigation the fees were found to be reasonable and a letter to that effect was mailed to the man. The letter was returned unopened with notation that the person to whom it was addressed had moved and left no forwarding address. Nothing has been heard of this case.

**REPORT OF EIGHTH COUNCILOR  
DISTRICT PROFESSIONAL  
RELATIONS COMMITTEE**  
HENRY G. HOLLENBERG, Chairman

The Pulaski County Professional Relations Committee has taken over the matter of grievances and such problems between patients and physicians. Our Councilor District Committee therefore functions now only in respect to the reviewing of Medicare bills and their accompanying letters. During the past year there have been a considerable number of knotty problems which have arisen in this connection. These problems have arisen largely because of ambiguities in the fee schedule and differences of interpretation in several respects. Our Committee when necessary has talked with the physicians concerned and have found them most understanding and cooperative in every instance. The matter has furthermore been discussed with the Council and these problems and difficulties are gradually being ironed out.

**TENTH COUNCILOR DISTRICT  
PROFESSIONAL RELATIONS  
COMMITTEE**

ART B. MARTIN, Chairman

The Professional Relations Committee of the Tenth Council District has received no complaints during the past year.

**EXECUTIVE SECRETARY'S REPORT**  
MR. PAUL C. SCHAEFER

The headquarters office of the Society continues to assume more responsibilities and offer more assistance to members and committees. There are now six people, including the executive secretary, in the office. In addition, the Editor has a part-time employee assisting him in preparing the Journal. Medicare is responsible for three of the employees and the program occupies an appreciable part of the time of the executive secretary and the two other employees not spending full time in processing and paying claims.

Dues, journal advertising and Medicare will furnish the bulk of the 1958 anticipated Society income of approximately \$91,000. This figure is part of the largest budget ever submitted to the Society and reflects the increased activity and vitality of the organization.

1957 was a year of an unusual amount of committee work. In addition to current programs, extensive preparations are being made for greatly increased activity by several of the major committees. The field of legislation alone promises to call upon all physicians for a great deal of work and sacrifice during 1958 and 1959.

Total membership in the Arkansas Medical Society during 1957 was: dues paying, 1,143; life, 62; affiliate, 32.

**REPORT OF THE  
BUDGET COMMITTEE**  
W. R. BROOKSHER, Chairman

The Budget Committee respectfully submits the following proposed budget for 1958:

INCOME	
Membership dues .....	\$33,000.00
Journal advertising .....	28,000.00
Booth Income .....	3,500.00
Annual Session Banquet and Registration .....	5,350.00
AMA Reimbursement .....	240.00
Miscellaneous .....	100.00
Retirement—	
Employee Contribution .....	126.00
Income from Medicare .....	21,272.00
	<hr/>
	\$91,588.00
EXPENSE	
Salaries .....	\$24,162.00
Journal Expense .....	24,000.00
Travel and Convention .....	7,500.00
Council Expense .....	300.00
Telephone and Telegraph .....	2,000.00
Office Expense .....	1,600.00
Postage .....	2,500.00
Dues and Subscriptions .....	300.00



# ARKANSAS MEDICAL SOCIETY MEETING, MAY 5-6-7, 1958

Rent.....	1,716.00
Taxes.....	360.00
Contributions.....	400.00
Annual Session.....	6,850.00
Rural Health.....	500.00
Public Relations.....	500.00
Senior Medical Day.....	500.00
Stationery and Printing.....	750.00
Auxiliary.....	1,100.00
Special Committees.....	400.00
Auditing.....	125.00
Miscellaneous.....	300.00
Bond Premiums and Insurance.....	150.00
Legal Services.....	1,000.00
Retirement Fund.....	1,986.00
Depreciation Reserve.....	675.00
Rebate to Government (Medicare).....	2,044.00
Contingency Fund A.....	5,000.00
Contingency Fund B.....	3,000.00
Equipment.....	1,100.00
	<hr/>
	90,818.00

## ANNUAL REPORT OF INSURANCE COMMITTEE SAM G. JAMESON, Chairman

Practically all activities of the Insurance Committee during the past year have been directed toward improving our problems with health and accident insurance. The vast majority of these problems arise from practices by certain insurance companies who apparently do not realize their moral or legal obligation to their insured. These practices can be classified in general as follows:

1. Inconveniences.
2. Lack of cooperation.
3. Misrepresentations.
4. Inconsistencies.
5. Abuses.
6. Fraud.

Although insurance companies doing the majority of business in Arkansas are reputable and rarely offer any reason for complaint, the companies who follow the above practices, either all or in part, are a reflection upon the insurance profession as a whole, and have done no small degree of damage to the good relations between the medical profession and hospitals and the public.

The Insurance Committee met on November 24, 1957, with the following Committee members present: Doctor J. J. Monfort, Dr. H. E. Mobley, Dr. L. E. Drewery, and Dr. Sam Jameson. Also present were Dr. Louis K. Hundley, Dr. T. Duel Brown, Dr. James M. Kolb, and Mr. Paul Schaefer. Representing the Medical Committee of the Arkansas Claim Managers Council were: Mr. George Brittain, Mr. George Wesendonk, and Mr. Al Mitchell. At this meeting a number of specific, detailed, documented complaints were reviewed, dealing with the various practices as stated above. It was agreed that the Medical Committee for the Arkansas Claim Managers Council would discuss these matters with their own companies and associates to try and obtain suggestions to correct these practices. It was

also decided that the physicians present would draw up plans to suggest a possible solution to this situation.

At the next meeting on January 26, the following Committee members were present: Dr. L. E. Drewery, Dr. H. E. Mobley, and Dr. Sam Jameson. Also present were Dr. Louis Hundley, Dr. T. Duel Brown, Dr. James M. Kolb, and Mr. Paul Schaefer. Representing the Arkansas Claim Managers Council were: Mr. George Brittain, Mr. George Wesendonk, and Mr. L. T. McSpadden. Also present was Senator Marshall Shackleford of El Dorado, Chairman of the Arkansas Legislative Council. Senator Shackleford has been interested in this problem for several years, and was on the Committee of Corporations, Insurance and Banking in 1954, at which time the Research Department of the Arkansas Legislative Council prepared a research memorandum pertaining to State Regulation of Health and Accident Insurance. This problem had been recognized by others than physicians at that time, and because of the nationwide existence of the same problem, the Arkansas Legislature passed Act 394 in 1951, which in essence was a model law regulating health and accident insurance companies, and which was prepared and adopted by the National Association of State Insurance Commissioners.

The Committee representing the Claim Managers Council reported that they had contacted the Health Insurance Council with headquarters in New York, representing commercial insurance companies which write approximately 80-85 per cent of all health and accident insurance. It was pointed out that the companies in question were not members of the Health Insurance Council, and therefore the Health Insurance Council had no jurisdiction over their actions. It was decided to contact a representative of the Health Insurance Council, asking him to meet with our Committee in the future and suggest ways by which the insurance profession in general could deal with the companies in question. Tentative plans are being made now for this meeting.

Senator Shackleford reviewed Act 394, and also reviewed the findings of the Research Committee of the Arkansas Legislative Council in 1954 pertaining to the health and accident insurance problem. Because of the importance of this problem with its adverse economic effect on a large segment of our population who can least afford it, it was suggested that the entire Committee meet with Governor Orval Faubus and present the problem to him, requesting advice as to a possible method of correction.

The meeting with Governor Faubus was arranged by Senator Shackleford and was held on January 29, and the Governor was very understanding and sympathetic toward our problems with the practices of certain insurance companies in question. He suggested that the Committee meet with the Insurance Commissioner, presenting all of our documented evidence, at which time it can be determined, with the assistance of legal counsel, as to how much authority the Commissioner has to deal with these problems, and whether the situation can be corrected

without additional remedial legislation. This meeting was arranged by Governor Faubus, and is to be held on February 27.

Objectives of the Committee in the health and accident insurance field include the following:

1. Standardization of all claim forms.
2. Elimination of exclusion riders which include all of one system, even though only a specific part of that system is affected.
3. Noncancellability of all health and accident insurance after it has been in effect for a period of three years.
4. Enforcement of present laws, if they exist, or passage of new laws to prevent misrepresentation and fraudulent sale of policies.
5. Standardization of policies to at least exclude inconsistencies and abuses such as exclusion or decreased payment for diseases not common to both sexes, unfair waiting periods after taking out a policy, and ambiguous statements in policies such as "payment of usual charge by hospital for all drugs, but not to exceed \$15.00."
6. Possible formation of a Medical Advisory Committee to work with the Insurance Commissioner.

The Committee feels that every physician in Arkansas is aware of, and has had contact with, the problems mentioned above. Although the Committee has a rather large number of documented cases with these complaints, our case can always be stated much more effectively with a larger amount of evidence. The Committee requests that any physician who has documented evidence submit such evidence to the Committee for future use. This must include letters, insurance policies, and any other legal document pertaining to a complaint or abuse.

The business expense disability insurance plan offered by the American Casualty Company through Rather & Beyer in Little Rock, and which was approved by the Committee in January, 1957, is now in effect and available to all members of the Society. This plan is very attractive, and premiums are tax deductible. The Committee suggests that each member inform himself about this plan for his own benefit in the event of unexpected sickness or injury.

Although improvement of our malpractice insurance has been considered and discussed, the Committee has not devoted any detailed study to this, other than the work done by Doctor Monfort in obtaining considerable information from the Oregon State Medical Society. This material is now under study, and it may be possible to improve our premiums on malpractice insurance in the future.

The Committee wishes to express its appreciation to Dr. Monfort for his untiring work and devotion as Chairman of this Committee and Secretary of the Arkansas Medical Society, and regrets sincerely that it was necessary for him to resign these positions.

The Committee also expresses its appreciation and gratitude to Senator Marshall Shackelford, who has devoted considerable of his own time

and expense in studying the health and accident insurance problem, and is sincerely interested in improving the situation as it presently exists with certain companies.

## THE AMERICAN MEDICAL EDUCATION FOUNDATION

W. R. Brooksher, Chairman

With contributions totalling \$984,885, the American Medical Education Foundation has completed its sixth year of activity, the amount contributed representing a 13% increase in voluntary gifts over the preceding year. Of this amount physicians gave \$541,528.46 and the Woman's Auxiliary, \$113,540.56. There were 54 contributors in Arkansas who gave \$2,022.42, an unimpressive amount, in fact exceeded by all but five states. In Arkansas the most encouraging action to date was the voluntary assessment of its membership by the Pope-Yell County Medical Society of \$25.00 per annum for the Foundation.

Continued and more liberal giving is essential in Arkansas if the objective of The American Medical Education Foundation—the support of medical education on a voluntary basis—is to be attained.

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## RESOLUTION OF BOARD OF GOVERNORS OUACHITA COUNTY HOSPITAL

WHEREAS, the Forand Bill (HR-9467) now pending in Congress represents a step in the direction of socialized medicine and,

WHEREAS this Board feels that the method proposed in said bill is not the best nor a proper solution to the hospital and medical care of the aged,

THEREFORE in our regular Board meeting on this date we RESOLVE, that we oppose the Forand Bill and request that a copy of this resolution be sent to the American Hospital Association, the American Medical Association, our two United States Senators and Congressman Oren Harris.

Signed,

C. C. Adams, Chairman

Jim B. Wood

William J. Rogers

G. W. Haltom

Mike Berg

G. L. Crutchfield, Administrator

M. C. Reynolds, County Judge

Date—Jan. 7, 1958



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## Medicine in the News

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### President Proposes Checks On Union Welfare Funds

As a part of his program of labor legislation, presented to Congress January 23, President Eisenhower proposes that welfare funds, whether administered by the union, the employer or jointly, be required to register and to make annual reports, which could be published. On this the President makes two points:

**First**, a Commissioner of Labor Reports to be established within the Department of Labor.

**Second**, Congress to enact legislation "to require the registration and detailed annual reporting . . . with appropriate disclosure, of all plans which provide health, welfare or pension benefits to working men and women . . ."

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### ANSWER FOR "WHAT'S YOUR DIAGNOSIS?"

The film is a pre-sacral gas insufflation using nitrous oxide. Note the unusually clear delineation of the renal shadows bilaterally and the five by eight centimeter mass lying medial to the left kidney.

The patient was a forty-one year old colored female admitted to the hospital with complaints of a rather chronic cough and also "fast heart action for several years". Physical examination revealed a blood pressure of 150/100 and a pulse rate of 144 per min. regular.

Two Regitine tests were unequivocally positive. The history, physical findings, Regitine tests when correlated with the distinct radiographic evidence of tumor mass in the region of the left kidney led to a preoperative diagnosis of pheochromocytoma which was confirmed histologically.

From the Department of Radiology,  
University of Arkansas School of Medicine

### American Thrift Assembly Urges Early Passage of Jenkins-Keogh

The American Thrift Assembly pressed its case for enactment of Jenkins-Keogh legislation at a hearing of the House Ways and Means Committee on January 24. The four witnesses were F. Joseph Donohue, ATA chairman; Roger F. Murray, PhD, associate dean, Columbia University Graduate School of Business; Robert C. Vogt, consulting engineer, National Society of Professional Engineers, and George S. Geffs, attorney, Janesville, Wisc. Their theme was that passage is essential to right a long-standing inequity for the 10 million or more self-employed. The proposal would allow tax deferment on money paid into annuity plans, with the tax coming due only when the pensioner starts receiving it back in later years.

### Administration Offers Pay Raise Bill for VA Medical Personnel

The Veterans Administration has drafted and sent to Congress legislation raising the pay scale of physicians and other personnel in the VA Department of Medicine and Surgery. The administration proposal would raise pay in a range from 6 to 18 per cent, with the higher salaried getting the larger percentage increase. VA estimates its proposal would cost another \$10 million a year, as against \$6 million for a somewhat similar bill by Rep. Long (D., La.). Unlike the Long bill which is now pending in the House, the administration draft does not elevate optometrists to the same professional status as physicians within VA. In the last session, the VA indicated support of pay raises for medical personnel, but the Budget Bureau did not favor the idea then. Meanwhile, a House Veterans Affairs Subcommittee has approved a bill designed to consolidate all VA laws and regulations, following consolidation last year of those dealing with compensation, pensions, hospitalization and burial benefits. Disabled American Veterans, Amvets, the Veterans of Foreign Wars and the American Legion all favor the bill.

## President Eisenhower's Budget Request Reveals Emphasis Overwhelmingly on Security and Science

The budget message asks for an immediate \$1.3 billion for Defense Department's research and development programs, and an additional increase of \$2.5 billion for the next fiscal year, starting July 1. It also projects a vast program to improve science teaching and channel capable students in the direction of mathematics and science. Yet, even in the face of competition for mastery of space, Mr. Eisenhower reminds the Congress and the nation that education is not the responsibility of the federal government alone. He says:

"Scientific and research efforts . . . must be expanded. This is a task not only for the Government but also for private industry, foundations, and educational institutions. The Government, on its part, will increase its efforts in this area.

Supplemental appropriations for 1958 will be requested for the National Advisory Committee for Aeronautics and the National Science Foundation, as well as the Department of Defense. For 1959, new programs to promote education in science are being recommended and basic research activities are being generally expanded."

### Support Withdrawn from Proposed Programs

It is unusual for an administration to withdraw publicly from support of a proposal that has wide political appeal. But Mr. Eisenhower does so in these words:

"Under present conditions, I am not recommending enactment at this time of certain legislation now pending in the Congress for new programs which I have previously advocated. For example, instead of general aid for construction of school rooms, I am now recommending a broad temporary program of aid to education which is largely science-oriented. I am also deferring proposals for some other grant programs and on certain new public works projects.

"I am also making recommendations to reduce some programs, to curtail expansion in others, and to transfer greater re-

sponsibility from the federal government to state and local governments or to private individuals or enterprises. All of these recommendations, in addition to being required by sound public policy, will help to hold expenditures in future years to prudent levels. . .

"As I have repeatedly emphasized, the continued vitality of our federal form of government requires that, to the maximum extent possible, primary responsibility for public programs be shouldered by that level of government most familiar with local problems and most responsive to them. We must exercise the utmost restraint in assigning new programs and responsibilities to the Federal Government, and we should continuously search out those programs and activities now carried on at the national level that can and should be handled by the States or localities.

"Prudent limitation of Federal activities cannot alone meet the whole problem of over-centralization. The continued strength of our federal system also depends upon reinforcing the administrative and fiscal ability of the States to carry out their responsibilities . . .

"The initial progress report of the joint Federal-State Action Committee recommends complete transfer of two programs to the States together with the simultaneous relinquishment of a portion of the local telephone service tax which the Federal Government now collects. These programs are vocational education and the construction of waste-treatment facilities. Legislative proposals to carry out these and future recommendations of the Committee will be transmitted to the Congress . . . The effect of the proposed transfers on expenditures and revenues of the Federal Government will occur beginning in 1960. . ."

Later, the message withdraws administration support from another proposed program:

"Last year I recommended a program of hospitalization and medical insurance for Government employees. In view of the priority given to recommended pay adjustments, I propose that this health insurance program be postponed."



## Long-Range Planning For More State Responsibility

After citing proposed expenditures for labor and welfare activities—\$3.6 billion, or \$200 million more than this year—the President tells specifically how he proposes to withdraw the U. S. from some welfare programs, and at the same time open up new revenue sources so states can take over these operations.

“A large portion of the expenditures for labor and welfare programs consists of grants-in-aid to States and local governments, and cannot be reduced without changes in basic authorizing legislation. At this time, I am proposing revisions in the legislation governing five of these grant programs which will lead to some small reductions in the Federal budget for the fiscal year 1959, and to some larger reductions in later years. Under these proposals, the proportion or amount of Federal participation would be reduced for schools in federally affected areas, for hospital construction, and for public assistance.

“I am also recommending action on legislation relating to revenues so the States can assume responsibility beginning in 1960, and Federal aid can cease, for vocational education and waste treatment plant construction. Continuing work by the joint Federal-State Action Committee, as well as thoroughgoing reappraisals by Federal agencies on their own initiative, should lead to further recommendations for reducing grant-in-aid programs in future years, with the States assuming more of the responsibility for these activities and themselves collecting more tax revenues to finance them. . .

“Our technological progress requires a higher level of support for basic scientific research from both private and public sources. It also demands a growing supply of highly trained manpower—scientists, engineers, teachers, and technicians. To this end, I am recommending an expanded program for the National Science Foundation and a new program for the Department of Health, Education, and Welfare. These programs will be closely coordinated.”

After outlining the administration's

broad plans for improving the teaching of science and for assisting basic researchers through the National Science Foundation, and for subsidizing needy college students through the Department of Health, Education, and Welfare, the President explains one area where it could reduce its educational costs:

“The Federal Government has a responsibility for aiding school districts when it creates serious financial problems for them. It has recognized this responsibility in the past by providing grants to help build and operate schools in districts where enrollment is swelled by Federal activities. Experience with these programs, however, suggests that they should be modified; many of the communities for which grants have been made no longer have problems as acute as those suddenly generated by the migration of workers and families to them during the Korean crisis.

“In view of the continued maintenance of a substantial defense establishment with shifting locations, authority for grants for construction and operation of schools should be extended, but the assistance should be restricted to instances where the Federal personnel both live and work on Federal property. However, grants for operation of schools on behalf of people living on taxable property should be gradually reduced during an adjustment period, and then terminated.”

## President Would Restrict Hospital Construction Grants

The Hill-Burton hospital construction program has been in operation for about 10 years; in recent years it has been renewed almost automatically when its scheduled expiration date has approached. The President thinks now is the time to alter its objectives and reduce its scope.

## Social Security Operation Should Be ‘Appraised as a Whole’

Mr. Eisenhower would have the Congress go slow in making any further changes at the present time in social security, and he believes action should be taken to return to the states more responsibility for providing public assistance.

### Adjustments Proposed in Veterans Administration Programs

Mr. Eisenhower notes that under existing laws the nation is faced with large and increasing costs for veterans benefits. He thinks something can be done about it.

Costs for pensions for needy veterans will increase sharply. These pensions meet needs not related to the veteran's service, but to hazards to health and income that generally grow with increasing age. Fundamental changes have taken place in our society . . . which require us to reconsider the laws providing veterans benefits which now overlap other growing public benefit and welfare programs . . . A message will be sent to the Congress at an early date (containing) . . . recommendations for specific adjustments and improvements in the veterans programs.

### Six Named to Health Resources Advisory Committee

The six members of the Health Resources Advisory Committee under chairmanship of Dr. Elmer Hess, past president of the AMA, have been appointed by Gordon Gray, director of the Office of Defense Mobilization. The committee advises the ODM director on health and medical problems as they pertain to mobilization in time of war or other emergency.

Members are Dr. William B. Walsh of Washington, assistant professor of medicine, Georgetown, and member of the AMA Committee on Military Medical Affairs; Dr. George Otis Whitecotten, Oakland, California, medical director of the Highland Alameda County Hospital; Dr. Franklin Yoder, Cheyenne, Wyo., director, State Department of Health and immediate past president of the Association of State and Territorial Health Officers; Dr. Mary Louise Gloechner, Conshohocken, Pa., a past vice-president of Pennsylvania Medical Society; Harold W. Opice, DDS, Chicago, past president, American Dental Association, Frances Graff, RN, Grand Rapids, Mich., director, School of Nursing and Nursing Service, Bodgett Memorial Hospital, and past president, Michigan League of Nursing Education.

### Army Duty Reduced for Some Doctors

Medical and Dental officers currently serving under a voluntary or involuntary two-year term of duty in the Army may now apply for discharge if they have completed 21 months of their present tour of active duty. The Army said the order is applicable only to medical officers normally slated for separation during the period between February 1 and July 31 of this year. Requests must be made in writing by February 10 and actual separation effective prior to June 30. The program applies only to the Army; the Navy took similar action last summer.

### Administration Budget Requests For Health Programs

First column shows amount being spent this fiscal year for major medical programs; second column contains specific requests made of Congress to finance the activities for next fiscal year, starting July 1, 1958.

	Estimated Fiscal 1958	Requested for Fiscal 1959
Food and Drug Administration.....	\$10,554,500	\$10,664,500
Office of Vocational Rehabilitation .....	52,230,000	56,800,000
Children's Bureau .....	43,500,000	43,663,000
Public Health Service.....	565,700,000	522,089,000
Venereal Disease Control .....	4,415,000	4,400,000
TB Control.....	7,000,000	5,386,000
Assistance to States.....	22,592,000	22,889,000
Communicable Disease Control.....	7,050,000	6,200,000
Sanitary Engineering activities.....	12,640,000	12,815,000
Grants for Waste Treatment Plants.....	45,000,000	45,000,000
Hill-Burton .....	121,200,000	75,000,000
Hospitals and Medical Care.....	44,399,000	44,309,000
Indian Health activities.....	40,100,000	40,225,000
Construction of Ind. Health facilities .....	3,130,000	2,374,000
NIH (Gen'l research and services) .....	14,026,000	17,742,000
Mental Health activities.....	39,217,000	37,697,000
Nat'l Heart Institute .....	35,936,000	34,712,000
Cancer Institute .....	56,402,000	55,923,000
Dental Health activities .....	6,430,000	6,293,000
Arthritis & Metabolic Diseases.....	20,385,000	20,592,000
Allergy and Infectious Diseases.....	17,400,000	17,497,000



Health Research		
Facilities.....	30,000,000	30,000,000
Neurology and Blindness		
Activities .....	21,387,000	20,727,000
Nat'l Library of Medicine	1,450,000	1,415,000
Veterans Administration	823,500,000	792,043,000
Outpatient care.....	79,000,000	75,798,000
Inpatient care .....	702,000,000	707,100,000
Hospital & Domiciliary		
Facilities.....	42,500,000	9,145,000
Atomic Energy		
Commission (Med.) .....	37,895,000	43,000,000
Civil Defense		
Administration .....	3,300,000	18,000,000
St. Elizabeth's		
(Wash., D. C. ....)	3,085,800	3,154,000
*Defense Department	370,207,000	359,632,000
Army.....	167,607,000	153,100,000
Air Force.....	117,400,000	118,000,000
Navy.....	85,200,000	88,532,000

\*Includes \$76 million both years for civilian Medicare program, but does not include hospital construction or alteration costs.

## New Legislation

### Taxation

Senator Frear (D., Dela.) would allow an additional exemption of \$600 for a taxpayer, his spouse or dependents if they are attending an educational institution above the secondary level at least four months in the year. Additional exemptions for medical expenses also would be allowed for those qualifying as a student under this bill. The Frear bill is S. 2938 . . . A similar bill, H. R. 10026 by Rep. Sikes (D., Fla.), would allow an additional \$600 exemption for each child who is a student above the twelfth grade. . . In H. R. 9971, Rep. Ikard (D., Texas) would allow deduction from taxable income of money paid to institutions of higher learning for tuition, fees or books on behalf of the taxpayer or his dependents. . . Rep. Teller (D., N. Y.) has the same idea in H. R. 10030, which would credit all additional expenses above the present \$600 exemption for a taxpayer's dependent who is attending college.

### Union Welfare Funds

S. 3044 by Senator Mundt (R., S.D.) proposes to require that union welfare funds (medical and hospital as well as pension, life, etc.) open their books for inspection by the Treasury Department's Comptroller of Currency. It would prohibit the National Labor Relations Board from acting on the complaint of any labor organization that could not certify

that its books, and records, and those of the affiliated labor organizations, as well as its welfare plan, had been examined by the comptroller. The comptroller would be required to ascertain if the fund had been investing its money properly, and if its money was being administered for which collected. If, after notification, the union did not discontinue the improper practices, the Comptroller would be authorized to publish a report on the situation and to make the facts known to the appropriate law enforcement officer if there is evidence of law violation. The bill would remove the tax exemption of any union not meeting requirements, and any union employee found guilty of embezzlement would be subject to a \$5,000 fine or five years imprisonment or both.

### Veterans

A bill by Rep. Aspinall (D., Colo.) would extend from two to three years the period of presumption of service connection following separation for "chronic functional psychoses" and multiple sclerosis developing to a 10 per cent degree of disability. Chairman Teague (D., Texas) of the House Veterans Affairs Committee in H. R. 10028 would forbid Veterans Administration to close any hospital, domiciliary home, medical center or regional office unless it gives his committee 90 days' advance notice.

### Social Security

Rep. Fino (R., N.Y.) wants to raise the ceiling on income to be taxed under the Social security system from the present \$4,200 to \$6,000 and increase OASDI monthly maximum payments to individuals from \$108.50 to \$138.50 and the maximum family payment from \$200 to \$250.

### New Legislation in Congress

Tax Deductions . . . Veterans Benefits . . . Social Security . . . Proposed Conference to Study Problems of Aged:

### Taxation

Rep. Boggs (D., La.) in H. R. 9633 would raise the limit on medical deductions for income tax purposes to permit disabled taxpayers over 65 and their spouses to take up to \$20,000 annually in deductions for medical expenses . . . To

help in financing education, Senator Frear (D., Dela.) proposes to allow an additional exemption of \$600 per year for taxpayer, spouse or dependent while they are attending an institution of higher learning. Senator Frear's bill is S. 2938.

### Social Security

A bill introduced by Rep. Roosevelt (D., Calif.) would increase the wage base on which social security taxes are collected from the present first \$4,200 of income to the first \$10,000. Also, the limit would go up \$500 each year that the Consumer Price Index rises five points, and remain at the higher level as long as any part of the index gain is retained. The monthly social security benefits also would be increased under a new formula. Under this bill a self-employed individual with an income of \$10,000 would pay at least \$637.50 in social security taxes alone. The number is H. R. 9834 . . . Mr. Roosevelt, in H. R. 9835, would make social security coverage compulsory for all physicians . . . Another Roosevelt bill (H. R. 9836) would liberalize requirements for disability benefits both under the social security disability payments program and the disability "freeze" by a less strict definition of time the recipient has spent in covered occupations. It would make another important change by specifying that an applicant would be eligible for benefits if unable to obtain employment in an occupation similar to the work he formerly engaged in; under present law the benefit is allowed only if the applicant is physically unfit for any substantial gainful employment. Furthermore, a statement from a governmental agency that the applicant qualifies as disabled under its regulations would be sufficient evidence of disability under the social security program.

### Veterans

Rep. Rogers (R., Mass.) introduced H. R. 9717 as a means of technically correcting H. R. 1264, which passed the House last year and is pending in the Senate. The objective is to grant the status of "permanently and totally disabled" for pension purposes to veterans suffering from active pulmonary tuberculosis while they are hospitalized. The latter bill was drawn up as an amendment to part of the

VA statutes, which themselves were consolidated in the last days of the first session; the former bill corrects the statutory reference. . . The consolidation mentioned above brought together all VA laws relating to compensation, pensions, hospitalization and burial benefits; Rep. Teague (D., Texas) is proposing to consolidate all VA laws and at the same time extend certain benefits to fringe groups, such as military cadets and National Guard members while on inactive duty. The Teague bill is H. R. 9700 . . . Rep. Smith (D., Miss.) believes that if a veteran's condition has been rated as service-connected for 10 years or more he should have the security of a permanent designation of service-connection for the condition, even if in the meantime the condition has been rehabilitated. The Smith bill is H. R. 9726.

### Problems of the Aged

Rep. Fogarty (D., R.I.) in H. R. 9822 and Senators Neuberger (D., Ore.) and Kefauver (D., Tenn.) in S. 2994 (identical bills) propose to request the President to call a White House conference on aging and to assist states in conducting similar conferences prior to the White House meeting. The conference would be planned with the advice of an advisory committee.

### Federal Education Debate

#### Warms Up as Session Opens

The second session of the 85th Congress was only a day old when the pot started to boil on a major issue—the extent of federal participation in education. On January 8, the House Education and Labor subcommittee headed by Rep. Elliott (D., Ala.) resumed hearings in Washington after sessions around the country. The hearings which began last August have centered on federal scholarships and have been sharpened since the Russian advances in missiles and satellites.

Roscoe L. West, president emeritus of New Jersey State Teachers College and spokesman for the American Council on Education, told the committee that federal scholarships should be non-categorical and "across the board." He thus sides with the administration approach which



is still to be formally presented to Congress. This program for \$1 billion over a 4-year period would benefit premedical but generally not medical students, as the scholarships would be limited to four years.

### **President Invites Russia To Pool Medical Efforts**

President Eisenhower wants Russia to join with the U. S. and other nations in a worldwide, cooperative effort to promote medical research and the control of diseases. In his State of the Union message, the President issued an open invitation to the Soviet to participate in the pooling of research skills to learn more about "diseases that are the common enemy of all mortals—such as cancer and heart disease." He also asked Russia to join in the campaign now under way, through World Health Organization, "to eradicate from the face of the earth that age-old scourge of mankind: malaria."

### **Testimony Given on Jenkins-Keogh And Tax Relief for Disabled**

Testimony in support of the Jenkins-Keogh bill and legislation to give special tax relief to the handicapped was heard this week as the House Ways and Means Committee continued its hearings on the general subject of revision of the tax laws. Vernon Herndon of Chicago, second vice-president of the American Hotel Association and a member of the group's Governmental Affairs Committee, made an appeal for Jenkins-Keogh in the course of testimony covering a wide range of taxation problems. He declared:

"These measures (Jenkins-Keogh) would give self-employed persons a tax deduction for amounts placed in individual retirement programs. At the moment, corporation employers can treat as deductible for expense purposes when computing income tax, funds paid into retirement for employees. These proposals, which would set up similar machinery for partnerships and proprietorships, would appear equitable in every respect."

### **Fogarty Proposes White House Conference on Aging This Year**

Rep. John Fogarty (D., R. I.), a leading congressional figure in health mat-

ters, wants Congress to enact a bill that would provide for a broad-scale White House Conference on Aging. It would be called by the President and would be held before December 31 of this year. Subjects to be discussed by representatives of federal and private agencies concerned with the aged would include medical care and research, housing and retirement income. The bill (H. R. 9822) also authorizes assistance to the states to help them conduct similar conferences prior to the White House meeting.

### **Ways and Means Committee Opens Hearings on Tax Changes**

The House Ways and Means Committee is embarked on a month-long series of hearings pointed toward a revision of tax laws for, as Chairman Mills described it, "the ultimate benefit of all of our people." For the medical profession, the highlight will be January 24, when testimony will be heard on the Jenkins-Keogh bill. Witnesses for the American Thrift Assembly, of which the American Medical Association is a member, will testify on that day, and the AMA will also file its own statement.

The Jenkins-Keogh bill, long supported by the AMA, would permit the self-employed to defer tax payments on a portion of their income if put into retirement plans. Income taxes would be paid later, when the money is received back in the form of retirement benefits. As the hearings opened, the committee's new chairman, Rep. Wilbur Mills (D., Ark.) declared:

"Beginning these hearings as we do confronted with the harsh realities of Soviet technological and scientific advances, we are all aware that perhaps the most important weapon in the arsenal of freedom is found in our federal internal revenue system. Our tax system provides the funds not only for the shield of defense but for the sword of retaliatory power which protects the free world. To assure the continued effectiveness of our tax system and to maintain the continued confidence of our people in it, we must see to it that the objectives outlined by the late chairman (Rep. Jere Cooper) for these hearings are attained. They are objectives which re-

quire continuing study and effort not only from the tax committees of Congress and the executive department but the interested public as well. I am sure that we will receive a great fund of information from the witnesses appearing here, which can lead to revision of our tax laws to the ultimate benefit of all of our people."

## The Month in Washington

**Washington, D. C.**—Russian advances in outer space have triggered a whole series of debates, not the least of which is the issue of the scope and extent of federal participation in higher education. From it may emerge at the very minimum a scholarship program benefiting pre-medical students and some medical students.

Here are some of the questions that Congress will have to answer before it writes a final bill on federal aid to higher education:

1. Should a program be limited to federal scholarships or should it include grant money for improving and enlarging colleges and universities, or for loans to students?
2. If it is limited to scholarships, should they be non-categorical in nature rather than favoring specific disciplines?
3. If non-categorical and thus benefiting all phases of higher education, how best to justify this approach in the national interest and national security?
4. Finally, if aimed at specific disciplines, should not Congress require some obligation for service on the part of the recipient?

Some of the answers have been given in the administration's plan now before Congress. As outlined by Secretary Folsom of the Department of Health, Education and Welfare, \$1 billion would be authorized over a four-year period. The money would go for 10,000 scholarships a year to bright students unable to finance their schooling, for National Science Foundation grants and fellowships for post-doctoral training and up to \$125,000 for any one school to improve facilities.

It has been explained that this program would benefit pre-medical students but that since scholarships would be limited

to four years, students would have to find other ways to finance most of their years in medical school. After receiving their medical degrees, however, they would be eligible for the fellowships from the National Science Foundation.

The administration program favors the non-categorical approach, although preference would be given high school students with good preparation in math and the sciences. Students themselves would decide what college course to pursue.

This program has met mixed reaction. Educators say considerably more money should be authorized — some asking for as much as four times the proposed \$1 billion.

The American Council on Education, which takes in nearly all accredited colleges, universities and junior colleges, told a House Education subcommittee that the 10,000 scholarships are "a minimum below which a program of effectiveness would be doubtful . . ."

The council outlined for the subcommittee these guiding principles:

1. The student should have complete freedom to choose his own program of studies within the requirements set by the individual institution.
2. Stipends up to a maximum amount set generally for the program should be sufficient to enable the student to attend an eligible college.
3. The student should not be denied the opportunity to attend any recognized college or university properly accredited under a regional accrediting association.
4. There should be no discrimination because of race, creed, color or sex.

## Dr. Shepard Appointed to National Advisory Heart Council

Appointment to the National Advisory Heart Council of Dr. William P. Shepard of New York City was announced today by Surgeon General Leroy E. Burney of the Public Health Service, U. S. Department of Health, Education, and Welfare.

A distinguished physician, executive, and leader in public affairs, Dr. Shepard is second vice-president for health and welfare of the Metropolitan Life Insurance Company. He has been associated with this concern since 1926; as Pacific Coast



welfare director until 1944 and then as third vice-president, health and welfare division, until assuming his present position in 1954.

### **AMA Offers More Medical Practice Booklets**

Additional copies of the booklet — "A Planning Guide for Establishing Medical Practice Units"—currently are available from the American Medical Association to state and county medical societies for use on a loan basis to individual physicians. Edited by the AMA and published through a Sears-Roebuck Foundation grant, this booklet originally was distributed to medical societies on a limited basis. However, if the copies now on file in medical society libraries have been mutilated or destroyed, requests for additional copies may now be filled. Requests should be directed to the AMA's Council on Medical Service.

### **How U. S. Scholarship Program Would Affect Medical Students**

Pre-medical students would be eligible for scholarships under the administration's new program, but with a four-year time limit on the benefits, the students would have to finance most of their medical school education in some other way. This is the way one source in the Department of Health, Education, and Welfare said the program would affect medical education:

1. Each year for the next four years the U. S. would provide 10,000 scholarships for bright students, the amount depending on the student's needs. Preference would go to those with good preparation in mathematics and science.

2. Students themselves would decide what college course to pursue; it could be pre-med or any other.

3. While scholarships generally would not be offered to students in medical school, on graduation they would be eligible for fellowships; these could be of material help in increasing the number of medical school teachers.

The administration also contemplates expanding several National Science Foun-

dation grants and fellowships programs, including one open to medical school graduates; this is pointed toward medical research or careers on medical faculties. NSF's greatest expansion, however, probably will be in summer institutes for high school mathematics and science teachers.

### **Folsom Cites Health and Welfare Gains in 1957**

Secretary Folsom, in a year-end review of Health, Education, and Welfare's activities, notes further progress in health, a steady growth of the social security system and a reawakened interest in educational problems. "These and many other developments are reasons for renewed confidence in the strength and resourcefulness of the American people," he states. Some highlights of the Folsom summary:

**Health Facilities**—About \$123 million in federal money was allocated for building 483 general, tuberculosis, mental and chronic disease hospitals plus rehab and diagnostic centers and nursing homes.

**Social Security**—Beneficiaries have risen from 9.3 million to over 11 million, including 150,000 disabled workers age 50-64; disability payments accounted for \$60 million and expenses \$5 million.

**Health Research and Training**—Of the \$211 million for NIH, \$110 million was grants to states and for research by labs, medical schools, hospitals and individual scientists. Another \$39 million was spent to train promising research scientists.

**Communicable Diseases**—Such diseases continued their steady decline.

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## **ANNOUNCEMENTS**

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### **Seminar for Physicians to Be Held**

After feeling out the sentiment of a representative number of physicians in the State, the Arkansas Commission on Alcoholism has decided to hold a seminar for members of the medical profession on April 17, 1958.

The general theme of the seminar will be "Alcoholism and the Practice of Medicine." Sessions will be held at the Medical Center, Little Rock, beginning at 10:00 a.m., April 17, 1958. A maximum

of six hours credit will be given. The lecturers participating in this conference will be nationally known doctors who have devoted much time and study to the disease of Alcoholism, one of whom is Dr. R. G. Bell, of the Willow Dale Sanatorium, Ontario, Canada.

### **American Board of Obstetrics And Gynecology**

The next scheduled examinations (Part II), oral and clinical for all candidates eligible, will be conducted at the Edgewater Beach Hotel, Chicago, Ill., by the entire Board from May 7 through 17, 1958. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

### **Pan American Medical Women's Alliance**

The VI Congress of the Pan American Medical Women's Alliance will be held April 14-17, 1958, at the McAllister Hotel in Miami, Florida.

### **Educational Council for Foreign Medical Graduates**

Dr. Dean F. Smiley will direct the Educational Council for Foreign Medical Graduates. This organization is sponsored by the American Medical Association, American Hospital Association, Association of American Medical Colleges and the Federation of State Medical Boards of the United States.

It will distribute to foreign medical graduates around the world authentic information regarding the opportunities, difficulties and pit-falls involved in coming to the U. S. on an exchange visitor or exchange student visa in order to take training as an intern or resident in a U. S. hospital, or coming on an immigrant visa with the hope of becoming licensed to practice.

It will make available to properly qualified foreign medical graduates while still in their own country a means of obtaining ECFMG certification (a) to the effect that their educational credentials have

been checked and found meeting minimal standards (18 years of formal education, including at least 4 years in a *bona fide* medical school), (b) that the command of English has been tested and found adequate for assuming an internship in an American hospital, (c) that the general knowledge of medicine as evidenced by passing of the American Medical Qualification Examination is adequate for assuming an internship in an American hospital.

It will provide hospitals, state licensing boards, and specialty boards which the foreign medical graduate designates, the results of the three-way screening available.

### **International College of Surgeons Meeting to Consider Problems Of General Practitioner**

The 11th biennial International Congress of the International College of Surgeons will be held in conjunction with the 23rd annual Congress of the United States and Canadian Sections (North American Federation) in Los Angeles, March 9-14.

An innovation of the meeting will be a surgical emergencies panel to which members of the American Academy of General Practice are invited. Dr. Ross T. McIntire of Chicago, executive director of the International College of Surgeons and former surgeon general of the U. S. Navy, will be the moderator.

### **National Meeting on Worker Health**

How to keep workers healthy and on the job through control of hazardous exposures in the working environment and provision of preventive medical services in industry will be the subject of a national Industrial Health Conference, to be held in Atlantic City, New Jersey, April 19-25, 1958. The Conference, an annual meeting, brings together physicians, nurses, engineers, chemists, toxicologists, and other specialists to discuss recent developments, problems, and progress in worker health.



## Obituary

**Dr. Rector C. Hooper**, 46, prominent urologist and chief of staff at St. Bernard's Hospital in Jonesboro, died January 15, 1958, three hours after suffering a heart attack near the completion of an operation on a patient. Dr. Hooper was born near Batesville and graduated from the University of Arkansas School of Medicine in 1939. He interned at Gorgas Hospital in the Panama Canal Zone. He had taught at the University of Arkansas School of Medicine and practiced at Dallas, Texas, Mountain View and Batesville before going to Jonesboro eight years ago. He was a diplomate of the American Board of Urology. Dr. Hooper was a director of the Jonesboro Kiwanis Club and a former lieutenant governor of the Batesville Division of the Mo-Ark District of Kiwanis International. He was a past president of the Craighead-Poinsett County Medical Society, a vice president of the Arkansas Medical Society, and was a member of the Jonesboro Chamber of Commerce. He is survived by his wife, Ann; a son, Anthony Hooper; two daughters, Misses Elizabeth and Sarah Hooper; his father, G. H. Hooper of Algoa; three brothers and one sister.

**Dr. Leonidas Forister Barrier**, 72, died January 9, 1958, in a Little Rock Hospital. Dr. Barrier was a graduate of Mill-sap College and the Medical Department of the University of Louisville, and did post-graduate work at Vanderbilt, New Orleans, Chicago and Washington, D. C. He was a member of Trinity Masonic Lodge 694, Little Rock Consistory, Arkansas Medical Society, Pulaski County Medical Society, and was a Fellow of the American Medical Association. Dr. Barrier was on the staff at Arkansas Baptist Hospital and St. Vincent Infirmary and was Chairman of the board at the McRae Sanatorium at Alexander. He was actively engaged in practice of medicine at Little Rock from 1921 until his retirement in 1956. Survivors include his wife, Mrs. Matilda Nichols Barrier; a

daughter, Mrs. Phillip T. Cullen of Little Rock; a brother and a sister.

**Dr. Orange King Judd**, aged 84, a Little Rock physician for 52 years, was killed about 1 p.m. December 28, 1957, when his head accidentally caught in a garage door at his home. Dr. Judd was attempting to repair an electric eye switch on the overhead swinging door to his garage. In order to fix the switch he had climbed up a step ladder and apparently when he got two of the faulty wires together they set the door in motion and caught Dr. Judd's neck. Dr. Judd would have been 85 in March, 1958. He was still active for his age and still practiced medicine. He was graduated in 1905 from the University of Arkansas School of Medicine. Dr. Judd took post graduate work at Johns Hopkins University and the Massachusetts General Hospital at Boston. He was one of the five founders and operators of the now defunct Trinity Hospital in Little Rock and was associated with the private institution from 1924 to 1954. He was Little Rock City health officer from 1907 to 1914. Dr. Judd was a member of Trinity Lodge of Free and Accepted Masons, the Arkansas Consistory, the Scimitar Shrine and a senior past commander of Trinity Lodge since 1908. He was a member of the Pulaski County Medical Society and the Arkansas State Medical Society. Survivors include two brothers, Clyde Judd of St. Louis and Milton C. Judd of Little Rock, and a sister, Mrs. Adeline Judd Geserich of La Puente, Cal.

**Dr. Oliver Clarence Wenger**, 73, former director of the U. S. Public Health Service free clinic and bath house in Hot Springs died January 6, 1958, at the U. S. Public Health Service Hospital at Chicago, Ill., following a heart attack. Dr. Wenger was born in St. Louis, Missouri, September 2, 1884. He graduated from St. Louis University Medical School in 1908. He began his medical career in private practice in St. Louis, later becoming associated with the St. Louis Board of Health. After European service with the U. S. Army Medical Corps in World War I, he became associated with the U. S. Public Health Service. Dr. Wenger, who

had resided in Hot Springs intermittently since 1919, maintained his permanent home there. Dr. Wenger is survived by his widow, Mrs. Elsi Isenman Wenger; one daughter Mrs. Sidney McCully, Hot Springs; two grandchildren and three sisters.

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## PERSONALS AND NEWS ITEMS

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**Drs. Homer K. Wright and Jack Wright**, Hot Springs, have announced the association of **Dr. R. V. Bennett** with their clinic. Dr. Bennett's practice is limited to orthopaedic surgery and rheumatology.

**Dr. Ben Saltzman** of Mountain Home will attend the United States Air Force School of Aviation Medicine at Randolph Field Texas from January 28th through April 6th.

New staff officers for the St. Vincent Infirmary, Little Rock, were named in a meeting recently. They are **Dr. Charles R. Henry**, chief of staff; **Dr. Joe Sanderlin**, chief of staff-elect; **Dr. Robert Ross**, secretary; **Dr. M. J. Kilbury**, chief of surgery; **Dr. M. R. McCaskill**, chief of obstetrics and gynecology; and **Dr. Joe Hardin**, chief of medicine.

**Dr. James W. Headstream** was a guest speaker for the Louisiana State University School of Medicine Post Graduate Course in Urology held in Shreveport recently.

**Dr. H. J. Hall**, Van Buren County representative to the Arkansas General Assembly has been appointed to an eight-year term on the Arkansas Medical Board by Governor Orval Faubus. Dr. Hall has served ten years on the board on appointments by Governors McMath, Cherry and Faubus. He has seniority on the other members of the board.

**Dr. Charles R. Henry**, Little Rock, participated in the 13th National Conference on Rural Health in Jackson, Mississippi, as a speaker on the morning program of

March 6th and as presiding officer of the general meeting that afternoon.

St. Mary's Hospital, Russellville, has as its director of the new pathology department, **Dr. William L. McNamara** formerly of Chicago.

The Newport Rotary Club had as its guest speaker recently, **Dr. Wesley J. Ketz** of Batesville. Dr. Ketz spoke on studies he has made of the recently-discovered Dead Sea Scrolls.

**Dr. J. Forrest Henry, Jr.**, of Little Rock, was guest speaker for the DeWitt Lions Club in January. His subject was glaucoma.

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## *Proceedings of Societies*

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**Dr. M. C. Edds**, Van Buren, has been elected president of the Crawford County Medical Society for 1958. Other officers elected were **Dr. J. N. Thicksten**, Alma, vice-president; and **Dr. Oliver Wallace**, Mulberry, secretary-treasurer.

**Gerald J. McLindon**, director of the Metropolitan Area Planning Commission of Little Rock spoke on "Main Street—1970" at the January meeting of the Pulaski County Medical Society.

**Dr. Ben N. Saltzman** was elected president of the Baxter County Medical Society at the January meeting. **Dr. John Guenthner** was elected vice president, **Dr. Walter S. Guinee** was elected secretary and **Dr. James C. Dunbar** was elected delegate.

Officers recently elected by the Columbia County Medical Society are **Dr. Paul Sizemore**, Magnolia, president; **Dr. Charles Kelley**, vice president and **Dr. C. L. Weber**, Magnolia, secretary-treasurer.

The Sebastian County Medical Society installed new officers at a dinner at the Hardscrabble Country Club in Fort Smith in January. They are **Dr. George W. Allen**, president, **Dr. Art Martin**, vice pres-



ident, Dr. J. P. Shermer, secretary and Dr. Clarence Glenn, treasurer.

The January meeting of the Greene-Clay County Medical Society was held in Lopez Lecture Hall in Paragould. Two Memphis internists, Dr. Otis Warr and Dr. Friedman spoke on "Long Term Use of Anti-Coagulant Therapy."

The Craighead - Poinsett County Medical Society met January 8th at the Country Club of Jonesboro. The program consisted of the following: Dr. William T. Black, Jr., of Memphis, "Cancer Smears and Cold Knife Conization"; Dr. Sidney D. Jones of Memphis, "The Reduction of Operative Obstetrics with the Use of Intravenous Pitocin."

Contributors to the American Medical Education Foundation during the month of December, 1957:

C. D. Gunter, Siloam Springs	\$ 16.67
C. L. Harris, Hope	5.00
J. D. Huskins, Siloam Springs	16.66
M. A. Jackson, Little Rock	10.00
G. H. Landers, El Dorado	50.00
Sanford C. Monroe, Pine Bluff	25.00
B. J. Puckett, Siloam Springs	16.67
Guy U. Robinson, Dumas	250.00
Carl L. Wilson, Fort Smith	50.00
Total	\$440.00

## Woman's Auxiliary

### AROUND THE STATE BY COUNTIES

**Bowie-Miller:** Bowie-Miller Auxiliary members provided Christmas toys, food, and clothing for a needy family as their Christmas project. The December meeting was a morning bridge party followed by a luncheon in the Mirror Room of the McCartney Hotel in Texarkana. Husbands and guests were invited to the January meeting to hear Judge James Robert Hubbard speak. The Public Relations committee was in charge of this meeting, which was a dinner in the Palm Room of the Grim Hotel. Mrs. Horace S. Ren-

shaw, president of the Auxiliary to the Texas Medical Society, was the guest of honor and speaker at the February meeting.

**Garland:** Christmas gifts for 72 needy children were provided by members of Garland County Medical Auxiliary at their Christmas meeting at the Army Navy Officers' Club in Hot Springs. The gifts were placed around a large life size snow man, which was lighted. Numerous other snowmen and snow flakes suspended from the ceiling carried out the "winter wonderland" theme for the meeting. Mrs. James Leatherman was program chairman for the day, and introduced Mrs. Frank Burton who told the story of "The Other Wise Man." Mrs. Robert S. Holland headed the committee on decorations for the meeting.

**Sebastian:** Mrs. Davis W. Goldstein entertained members of Sebastian County Medical Auxiliary in February at a luncheon meeting at her home. Assisting Mrs. Goldstein were Mrs. Gordon ReMine, Mrs. Bob Thompson, and Mrs. L. A. Whitaker, Jr. Mrs. Marlin Hoge is Sebastian County president.

**Washington:** A long-wanted piano was given to the Root School for Exceptional Children by Washington County Medical Auxiliary in December, as its mental health project for the year. Mrs. LeMon Clark of Fayetteville was chairman of the project. Mrs. H. W. Ward is president this year.

**About Today's Health:** Mrs. John Chénault, national chairman of Today's Health, has notified the auxiliary that Arkansas is behind in subscriptions. Last year's record boasted six counties over their quota. Remember—there's still time to renew YOUR subscriptions, and it also makes an ideal gift (and all for \$1.50).

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## BOOK REVIEWS

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**Fluid and Electrolytes in Practice.** Harry Statland, M.D. 2nd Edition, J. B. Lippincott Co., Philadelphia, Pa. Pp. 200. \$6.00. 1957.

Dr. Statland has written a very easy to read book on the general principles of fluid and acid

base balance. The first section of the book is confined to general principles and the second section to the application to special conditions. This book does not purport to bring out new information but as the author states in his preface, it is designed as a teaching primer. This is a very satisfactory book for medical students and the physician who is not interested in an intensive survey of the field.—AK

**Kaposi's Sarcoma:** Samuel M. Bluefarb, M.D., F.A.C.P., Associate Professor Dermatology, Northwestern University Medical School; Pp. 171, Illustrated. 1957, C. C. Thomas, Springfield, Ill.

This little known disease is brightly treated from the history of its first discussion more than 80 years ago, through an extensive report on its various pathological appearance to its symptoms and suggested treatment. More cases are being recognized and until recently, they have not had any considerable attention.

Dr. Bluefarb has presented in this handsome little volume his report indicating an exhaustive research into all that is known of the entity. There is a long list of references and the meticulous care which has been put into the preparation of the monograph will put it in authoritative position for years to come.

**Methodology of the Study of Ageing:** Editors, G. E. W. Wolstenholme, O.B.E., M.A. and M.B., and Cecilia M. O'Connor, B. Sc.; Volume III of Ciba Foundation's Colloquia on Ageing; Illustrated: Pp. 202; \$6.50; Little, Brown, and Co., Boston, Mass.

This short volume is a report on the third of a series of conferences on ageing, and consists of collections of reports and discussions on work in "methods" being used in the study. Ciba Foundation has supported the conference with the hope of speeding and organizing the observations of workers on the problem and gives, in this book, these men opportunity to put them on record. Obviously a reference work for researchers, this little volume has much of interest in Physiology and in Physiological Chemistry. Teachers and researchers in these fields will find the volume holds much of interest and value.—F.R.

## TUBERCULOSIS ABSTRACTS

Sponsored by

The Arkansas Tuberculosis Association

By Floyd M. Feldmann, M.D., Pediatrics, Feb. 1958.

The tuberculin test has long been accepted as a simple and highly specific test for the presence of tuberculous infection, but its possibilities and its limitations tend to be overlooked. Studies done in recent years by the World Health Organization

in connection with BCG vaccination programs, and observations made by the U. S. Public Health Service and others have provided valuable information, but there is still much to be learned.

*Significance of Dose of Tuberculin.* There is a tendency to think of the tuberculin reaction as an "all or none" phenomenon, although every pediatrician has learned that there is a wide range of tuberculin sensitivity in any group tested. Usually a tuberculin test is called positive or negative on the basis of size of reaction. If a Mantoux test is done, the indurations larger than five or six millimeters in diameter are arbitrarily called positive, but there are many smaller than this which represent some degree of sensitivity. Are these people with just a little sensitivity infected with tubercle bacilli? Undoubtedly some are but there is now good evidence that many represent a cross sensitization with other antigens. Studies now in progress may reveal the nature of the antigen or antigens able to produce some tuberculin sensitivity.

These findings give additional emphasis to an earlier study with graduated dosage of PPD which showed that in tuberculosis patients extremely small doses produce no reactors but with a gradual stepping up of the PPD strength an increasing percentage was positive until the dose of 0.0001 mg. was reached. At this point practically all persons with tuberculosis had a reaction of five millimeters or more. If the dose was further increased reactions were obtained in large numbers of children who were probably not infected. This with other studies indicates that a standard dose of 0.0001 mg. of PPD is satisfactory for most purposes.

The size of the tuberculin reaction may also be of diagnostic and prognostic significance. Recent preliminary studies (unpublished) at the Phipps Institute in Philadelphia indicate that the size of the tuberculin reaction is correlated with the probability of active tuberculosis; the bigger the reaction, the more likely it is that active disease is present.

Many observations point up the increasing usefulness of the tuberculin test to the pediatrician. The interpretations of various degrees of tuberculin sensitivity may be summarized as follows:



1. If a child has no reaction to 0.0001 mg. of PPD there is little possibility that he has a tuberculosis infection. Periodic testing, at least annually would establish the approximate time of a tuberculous infection.

2. A low degree of sensitivity with induration under five millimeters (5mm) in diameter could be the result of some other infection, or an insignificant tuberculous infection. The chance of active disease being present is extremely small.

3. With a reaction over five millimeters in size, the chances increase that active tuberculosis is now present, or will develop. Each child with such a reaction should have a thorough examination to confirm or exclude the presence of an active lesion. Most of such children will not have active lesions but will have an increased risk as they go through the ages 15 to 30, so long-term followups and periodic examinations are important.

*Effect of BCG on Tuberculin Test.* If a child has a positive test when first seen by the pediatrician, it will be important to know whether BCG has been given or not. The reaction may be a result of the BCG inoculation. A positive test should lead to a search for tubercle bacilli if there is reason to suspect a virulent infection. Some children do acquire serious tuberculosis disease in spite of a BCG vaccination.

*Chemoprophylaxis in Tuberculin Positive Children.* Isoniazid prophylactic treatment of tuberculin reactors to prevent the subsequent development of active disease has been advocated frequently in recent years. Perhaps studies now in progress will provide more precise indications for chemoprophylaxis. At this time, however, opinion is divided and the physician will have to use his best judgment based on such things as recency of infection, the age of the child, the size of the tuberculin reaction, the presence of any lesions on X-ray, the presence of predisposing conditions such as diabetes, and the future exposure to infection. Current investigations have confirmed the considerable risk of future disease in tuberculin reactors.

*Tuberculin Testing in Community Case Finding.* Tuberculin testing in private

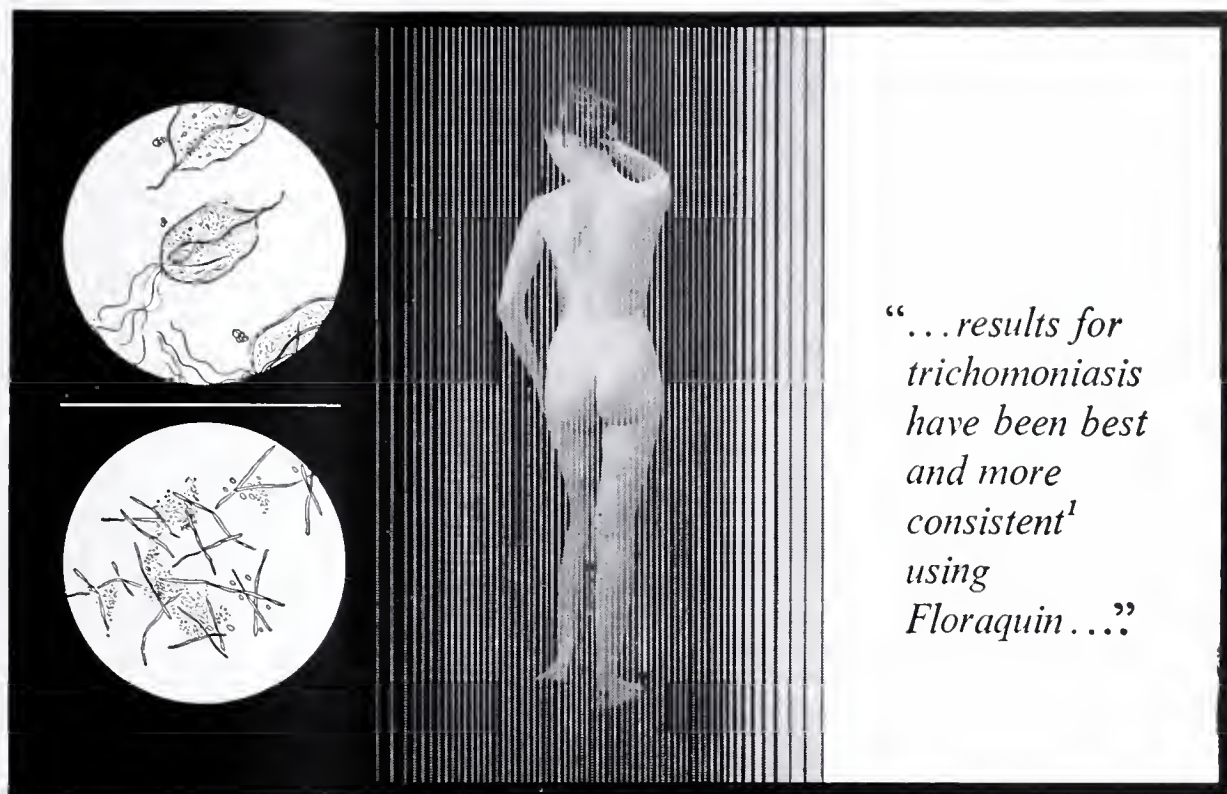
practice will pay an extra dividend in community tuberculosis control by providing leads to active cases which might escape detection otherwise. If the test is positive in a young child, the infection must be recent and its source is likely to be an active case among his close associates. In older children the source of infection may be more remote. The size of the reaction is important here too. Not only are those with larger reactions much more likely to have active tuberculosis, but higher rates of tuberculosis are found among their contacts. The physician can be of help to public health authorities by insisting that all associates of tuberculin reactors receive adequate examination.

*Tuberculosis Testing as an Index to Tuberculosis Prevalence.* The tuberculin test is a relatively simple and inexpensive procedure for determining infection rates in groups of children and adults. If these groups are retested at intervals, trends in the rates of new infection can be detected. It is quite clear from the evidence now available that infection rates have dropped markedly in the last few years in the United States. The need for more accurate measurement of tuberculin sensitivity is increasingly apparent. The only quantitative procedure now available is the Mantoux or intradermal test. The method and material used in the test has been described often and need not be repeated.

The patch test has been used extensively because of its convenience and the fact that no needle is necessary. However, it does have serious basic limitations and is not recommended. Many attempts have been made to improve patch test results but the dose of tuberculin cannot be controlled, because of the many factors which affect absorption of tuberculin through the skin.

*Tuberculin Testing Schedule.* A practical age schedule for tuberculin testing must always be a compromise. It seems to be common practice to test at least once each year as long as there is no reaction, substituting annual X-ray examination if the test becomes positive. Finding even an occasional new infection should be worth the little effort it takes in view of the risk to the child of future serious complication and the effectiveness of therapy.

EFFECTIVE, DEPENDABLE THERAPY FOR VAGINITIS



*"...results for  
trichomoniasis  
have been best  
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consistent<sup>1</sup>  
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Floraquin..."*

## Floraquin<sup>®</sup> eliminates trichomonal and mycotic infection; restores normal vaginal acidity

Leukorrhea is by far the most frequent symptom of vaginitis; trichomonads and monilia are the most common causes. Many authors have reported<sup>2</sup> trichomonal protozoa in the vagina of 25 per cent of obstetric and gynecologic patients. Increased use of broad spectrum antibiotics has resulted in a sharp rise in the incidence of monilial infections.

Floraquin effectively eradicates both trichomonal and monilial vaginal infections through the action of its Diodoquin<sup>®</sup> content. Floraquin also furnishes boric acid and sugar to restore the normal vaginal acidity which inhibits patho-

gens and favors the growth of protective Döderlein bacilli.

Pitt<sup>1</sup> recommends vaginal insufflation of Floraquin powder daily for three to five days, followed by acid douches and the daily insertion of Floraquin vaginal tablets throughout one or two menstrual cycles. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

1. Pitt, M. B.: Leukorrhea. Causes and Management, J. M. A. Alabama 25:182 (Feb.) 1956.

2. Parker, R. T.; Jones, C. P., and Thomas, W. L.: Pruritus Vulvae, North Carolina M. J. 16:570 (Dec.) 1955.

SEARLE



## FEATURES

If school children are being tested, the grades tested will depend somewhat on the number of new infections expected per year. In a low rate area it may be sufficient to test beginning students in kindergarten or the first grade, children about to leave elementary school and the last year in high school. In a high rate area it may be worthwhile to test all grades every year. Such group tuberculin testing programs must be carefully planned so the essential followup of contacts will not be neglected and to provide for a critical evaluation at the end.

Tuberculin testing of children cannot

take the place of the established public health program for tuberculosis control. Isolation and treatment of infectious patients, supervision of inactive cases, examination of contacts of active cases, X-ray screening of high rate groups, and programs to improve general public health are basic to any organized attack on the disease. However, routine tuberculin testing by all physicians coupled with well planned group testing of school children and others in a community can provide additional information useful for a more direct attack on the disease with the present effective therapeutic tools.

# The JOURNAL

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## A Review of 400 Hysterosalpingograms

EUGENE T. ELLISON, M.D., WM. D. THORNTON, M.D., CYRUS P. KLEIN, M.D.

Hysterosalpingograms carried out in our offices primarily, and a few done at the local hospitals for the period of 1948 through July 1957 are the basis of this presentation. These cases were primarily done in association with investigations of the cause of sterility among 330 couples who came to us desiring children. There were however a few radiographic studies carried out in an attempt to more clearly understand certain pelvic abnormalities found in the course of examinations of our female clientele. Data related to the investigation of other factors of the patients inability to conceive is included in order to show results obtained incidental to these tests, and to clinically verify the radiograph reports.

The procedures were carried out during the first week after menses had stopped, and after an attempt had been made to obtain a semen analysis from the husband. Prior to this the wife had a general physical examination and an attempt had been made to outline the procedures to her. The patient was placed on an X-Ray table, draped, and a vaginal preparation done with aqueous zephryn. A tenaculum was used to grasp the cervix and an acorn tipped cannula slipped into the cervix. A 10 cc syringe containing 8 cc of warm lipiodol was attached to the cannula and pressure applied. A pressure recording apparatus was used in the earlier cases but discarded because it seemed to add nothing to the procedures. 3-4 cc was first injected depending on the patient's pain reac-

tion and an X-Ray taken. If this proved inadequate to visualize the tubes, two more cc were injected. A 24 hour film was usually made if oil spill did not occur at this time. Increased pressures were used when pain was not too severe and the tube failed to visualize. The 10 cc syringe seemed preferable to other size in determining pressures which were of value to the testing, but not harmful to the patient. Following the X-Ray exposure, the residual oil was removed and a tampax inserted. No stirrups were used as the patient's feet would stick to the X-Ray table once her stockings were removed, and the knees could be held lightly by an assistant. An instrument cart with supplies, a head mirror and a goose neck lamp were the essentials which were taken to and from the X-Ray room after each test.

TABLE I.

Of the 400 procedures carried out, 186 showed normal X-Rays of the uterus and fallopian tubes with evidence of peritoneal spill of radio-opaque substance. 40 tests were considered inadequate because of failure of the patients to report for subsequent 24 hour films or from other technical difficulties. There were 105 pregnancies occurring subsequent to this procedure of which 20 resulted in miscarriage. These latter figures might well be higher were it possible to obtain a more adequate follow up on many of our patients. Attempts were made to obtain extended follow ups, but there were many who moved away and could not be found. It is embarrassing to admit that 75 patients out of the 330 did not follow up these constructive efforts.

\*Collom & Carney Clinic, Texarkana

<sup>1</sup> Presented before Arkansas State Ob-Gyn Society 1957

<sup>2</sup> Salpinx, a water soluble product, was used in approximately 20 cases.



Table I.  
Hysterosalpingography

400 Procedures
330 Patients
186 Normal X-Rays
280 Definite Peritoneal Spill of Oil
40 Inadequate Tests
105 Total Pregnancies After Procedures
20 Miscarriages

TABLE 2

A survey of the X-Rays taken revealed in addition to the preponderance of normal X-Rays, 15 cases in which the oil failed to pass into the fallopian tubes, 21 with definite obstruction at the fimbriae, and 19 definite diagnoses of hydrosalpinx. Spill into the peritoneum through 1 fallopian tube was observed in 45. Lateral displacement of the uterus suggesting adnexal pathology was observed in 7. Bicornute uteri were observed 9 times. Tumors, if diverticuli may be included, were found in only 9, consisting of 6 submucous fibroids, 1 diverticula and 2 polyps. There were other obvious clinically diagnosed fibroids which did not show up on X-Ray because of the fibroids being localized away from the uterine cavity, and others which the tubes failed to fill, and thus limit the diagnostic value of the pictures. 42 of the cases had multiple tests, particularly those of debatable nature, and others in which surgical procedures were subsequently carried out. X-Ray interpretation by the author was not always borne out by roentgenologist's estimation of a peritoneal spill when the films were read after drying.

Table II.  
Hysterosalpingography  
X-Ray Analysis

Normal X-Rays	186
Fallopian Tubes Closed at Cornu	15
Fallopian Tubes Closed at Fimbriae	21
Hydrosalpinx	19
One Fallopian Tube Open	45
Lateral Uterine Displace Suggesting Pathology	7
Bicornuate Uterus	4
Tumors of Uteri	9
Polyp?	11
Diverticuli?	1
Fibroid?	6
2 or More Tests per Case	42

TABLE 3

Complications were relatively rare as sedation following the procedures was required in only 15 cases, subsequent immediate inflammatory processes occurred in only 3 patients. One of these required abdominal surgery, another a pelvic drainage of fluid, and the third responded to antibiotics. Of most debatable nature was the subsequent finding of occluded tubes in 4 cases, and a diagnosis of endometriosis was made over the ensuing years in 4 others. X-Ray evidence of oil granulomas were found in three cases, but were not of clinical significance being found at subsequent X-Rays taken for pelvimetry estimation. While some of the incidental pelvic X-Rays taken at a later date shows residual oil this is not too frequently found and gave no clinical symptom.

Table III.  
Hysterosalpingography  
Complications

Post-Procedure Pain	
Sedation	15
Infections Severe (Flareup)	3
Endometriosis	4
Subsequent Occluded Tubes	4
Oil Granulomas	3

TABLE IV

Plastic procedures on the tubes were carried out on 9 patients, adoption advised and followed out in 13. Eleven hysterectomies were advised for indications growing out of the contribution to diagnosis made by the X-Ray studies. To illustrate the last statement, there were 3 colored girls in the late 20's who had fibroids and menorrhagia who after repeated testings showed no tubal patency and we were thus able to justify surgery at this early age.

Table IV  
Hysterosalpingography  
Follow Up Study

Plastic Tubal Procedures	9
Adoption Advised and Followed Through	13
Poor Follow Up	40
Poor Interest	35
Hysterectomy Advised	11

## Discussion:

There are numerous reports each year on large numbers of patients who have had sterility investigation. Most of these include radioactive oil insufflation as a major part of the investigation. Many think the test has therapeutic (1) (2) value as a method of opening some tubal occlusions. Others, however, doubt that sterility investigation adds more than a psychological boost to the infertile couple (3). Many clinical reviews list the probable cause of sterility according to certain anatomical consideration (4-8). Our results are too few to have statistical value particularly with the high percentage who had inadequate follow up. We, however, feel that our studies have been of marked psychological value to many childless couples and others who desire more children. It has, of course, made it possible in many cases for us to encourage adoption procedures and to present evidence of a thorough investigation to adoption agencies.

Those with a casual interest may become discouraged while the sincere nature of others is intensified. We do not feel that our complications have been more than a flareup of a pre-existing infection which could not always be avoided. From the standpoint of gynecology in

general, these X-Rays studies to us are as important in the diagnosis of pelvic pathology, as the X-Rays of other abdominal structures are to those interested in other fields.

## References

1. Multiple Uterotubal Insufflations in Case of Sterility Due to Tubal Occlusion; Martin Vesell, *Amer. Jour. Ob. & Gyn.*, Vol. 68:810.
2. Forty Years Progress in the Treatment of Female Sterility; I. C. Ruben, *Amer. Jour. Ob. & Gyn.*, Vol. 68:324.
3. A Critical Survey of Present Method of Diagnosis in Therapy in Human Sterility; *Amer. Jour. Ob. & Gyn.*, Vol. 70:741.
4. Correlation of Estimated Prognosis With Some Findings and Results in 750 Sterile Couples; Violet H. Turner, C. D. Davis, Baynard Carter, *Amer. Jour. Ob. & Gyn.*, Vol. 70:1189.
5. Hysterosalpingography; Ray A. Walther, *Jour. Missouri Med.*, Nov. 56:956.
6. Childless Couples Can Have Babies; "Look" Magazine, Vol. 21 (19) Sept. '57.
7. Analytical Study of 220 Cases of Sterility; Ronald Simard, *Amer. Jour. Ob. & Gyn.*, Vol. 67:54.
8. Factors Responsible for Pregnancy in 500 Infertile Cases; Abraham Stone, Muriel Eward, *Jour. Fertility and Sterility*, Vol. 7: 1, 1956.
9. Salpex; I. C. Ruben et al., *Jour. Fertility and Sterility*, Vol. 5 (No. 5) 357.
10. Problem of Infertility and Sterility (Panel Discussion), Geo. Bren & Co., Boston, May 9, 1957.



# Mineral Metabolism of the Skeleton

HOMER PATRICK, PH.D.

The minerals required for bone formation may be placed in two groups when total requirements in amounts are considered, namely, trace or minor elements and major elements, however, when biological function is considered they all play a very important role. Some of those which play roles are calcium, phosphorus, magnesium, potassium, zinc, fluorine, manganese, cobalt, molybdenum, copper, iron and sulfur.

The bone is a living structure, composed of many types of cells, which embryonically originated from the mesoderm. All connective tissue have a similar origin and may become physiologically upset so that they perform certain chemical properties similar to bone cells (osteoblasts) namely, being surrounded by calcium phosphate crystals. In general, we say that bones grow only by an appositional mechanism. The intercellular substance of bones becomes calcified as soon as it is formed, and is not sufficiently malleable to expand and make room for dividing bone cells within the substance of the bone. Each kind of bone grows according to its own schedule, which involves a delicately regulated balance between formation and bone resorption, between simultaneous deposition of calcium in some parts and removal of calcium from others. This can be easily demonstrated with autoradiographs of bones from animals which have received Ca-45.

Ca-45 and P-32 as research tools have helped many workers in studying calcium and phosphorus metabolism in bones. P-32 administered orally or intravenously has been followed in studying milk secretion and conditions associated with milk fever and depletion of bones during lactation.

Workers using Ca-45 to study the metabolism of bones have demonstrated that the different bones of the body have different rates of mineral salt turnover, and within a given bone there is a marked difference from one portion to another. Cal-

cium reaches an equilibrium between bone and blood serum and tissue very rapidly. Metabolism of calcium is more rapid in young animals than in old and this is observed with metabolism of elements of strontium, barium, yttrium and fluorine as well.

Calcium and phosphorus are deposited in bones as fluoroapatite or hydroxyapatite. Tricalcium phosphate also may be found along with magnesium, potassium, chlorine, strontium and arsenic. Strontium can replace part of the calcium in bones. The relative ratio of calcium to strontium uptake by the bone is controlled by dietary factors, method of feeding and age of animal. Young animals retain more strontium than older ones and animals on full feed retain less strontium than those on restricted feed intake. The removal of radioactive strontium Sr-89-90 or reduction in its uptake becomes of major importance when we consider end products of nuclear fission (fission products). These radionuclides are bone seekers which emit beta particles which can seriously impair the blood-forming functions of bone marrow and possibly induce bone tumors. They also have a long biological half-life.

There are many factors which influence absorption and rate of loss of Ca-45 from the body. One of the major roles played by vitamin D is in absorption of calcium. High fat rations, especially those with long chain fatty acids, reduce absorption and increase excretion of calcium. Magnesium carbonate reduces calcium absorption whereas magnesium chloride, citrate and sulfate increases both calcium absorption and urinary excretion.

Feeding excess calcium increases the turnover rate of calcium in bones. Parathyroid extract increases the loss of calcium and strontium from the bones.

The relation of calcium phosphate metabolism to zinc, an extracellular enzyme activator, should be considered. A zinc deficiency results in a disease known as parakeratosis in swine which is characterized by the formation of hard, dry

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crusts that are proliferated from the outer layers of the skin. These crusts are composed of keratin-like materials and debris which are formed from an abnormal acceleration in the rate of cell formation from the epidermis. A large number of the nuclei are retained in the layers of material. Parakeratosis is first noted by the reddening of the skin on the underline and the subsequent development of papules on the abdomen or between the rear and front flanks. These papules rapidly develop into pox like lesions and encrust very shortly to form kerotin-like scabs. Feed efficiency is reduced before clinical deficiency symptoms are observed.

Several unique conditions are observed in presence of a supposedly zinc deficiency (1) the diets generally contain the recognized required amounts of zinc, (2) the tissues contain an appreciable amount of zinc, (3) diets are generally high in calcium, (4) poor feed efficiency exists without visual skin symptoms and (5) vitamin D increases the uptake of zinc. Studies with Zn-65 demonstrated that high levels of calcium and phosphorus increased the exchange rate in bones as well as formation of insoluble phosphates in the gastrointestinal tract with removal of the Zn-65 from the tract. Feeding large amounts of zinc prevented the development of parakeratosis even when calcium and phosphorus levels are higher than recommended for adequate nutrition.

The feeding of excess calcium and phosphorus in diets containing purified feedstuffs resulted in deposition of calcium phosphate crystals in connective tissue as well as increased pH of the urine. The addition of natural feedstuffs such as alfalfa, corn meal, bran and whole oats corrected the condition. This brings to us a phenomena known as recycling of minerals. Minerals are absorbed from the gastrointestinal tract, metabolized by the organs, part excreted by kidneys, that remaining secreted into the intestinal tract, then reabsorbed or excreted as part of fecal material. Minerals can and are recycled several times. The excretion of minerals is not necessarily simple because some are absorbed, complexed or chelated with fecal materials. Calcium and phos-

phorus can be excreted as calcium phosphate or as a complex with some fecal matter. One of the most interesting discoveries on the recycling of minerals has been reported on potassium and cesium. Using cesium-134 (cesium-134 sometimes is considered a slow motion camera for potassium) it has been possible to demonstrate that the urine contains 25 to 50 times as much cesium-134 as present in fecal matter when the animals are fed a purified diet, however, when liberal amounts of alfalfa or beet pulp are fed it is possible to obtain as great excretion in fecal matter as in urine. Since this can be demonstrated by usage of subcutaneously injected Cs-134, it shows that there is present a substance in the gastrointestinal tract, (dietary nature) which ties up the cesium, thus preventing it from being reabsorbed here and not recycled in the body and by so doing prevents the kidney from excreting this element. The removal of part of the alkaline mineral elements by the intestinal tract reduces the load on the kidneys and also helps prevent the urine from becoming strongly alkaline.

When we consider the present day usage of refined foods along with recycling phenomena of minerals as related to renal clearance, the value of unrecognized nutritional factors present in natural foods such as alfalfa and bran becomes established, greater emphasis will be placed on the use of less refined foods or keeping minerals well balanced as we progress or extend the knowledge of nutrition.

Fluorine is a trace mineral forming part of fluoroapatite in bones. Bones generally contain 100 to 200 ppm on dry, fat free basis with usually somewhat lower levels in teeth. In endemic fluorosis areas, or under conditions of abnormal high intake of fluorine in the feed over a long period of time levels of 1000 to 2000 ppm in the bones can be found.

Investigations with mice have demonstrated that excess fluorine influences the development of the embryos. There is abnormal cartilage development along with abnormal tooth formation.

Vitamin B<sub>12</sub> also has been shown to be



related to cartilage formation and inorganic metabolism. Since vitamin B<sub>12</sub> is related to inorganic sulfur metabolism, cartilage formation and bone growth and fluorine is also related to cartilage development it seems reasonable to postulate that fluorine is probably related to inorganic metabolism according to the following metabolic pattern.

Methionine		
or		
Inorganic sulfur	+ Vitamin B <sub>12</sub>	chondroitin sulfate
	II	II
	Fluorine inter-	Mature bone
	feres with cycle	cells
	here.	

Studies with rats and chicks on metabolism of inorganic S-35 demonstrated that fluorine reduces bone growth and uptake of inorganic sulfur. The growth response to vitamin B<sub>12</sub> or aureomycin is greatly reduced.

Another very interesting study was made on the influence of fluorine on formation of the capsule by the connective tissue around bones implanted under the skin. The uptake of inorganic S-35 was used as the criterion since cells which are absorbing calcium phosphate are in rapid stage of formation of chondroitin sulfate. As in previous studies excess fluorine reduced the uptake of S-35 by the tissue. This may account for the nature of fluorosis in ruminants. The fluorine interferes with sulfur metabolism and also formation of vitamin B<sub>12</sub> by the microbiological flora in the rumen.

Copper-molybdenum and sulfur bone defects, resulting in spontaneous fractures have been reported in cattle, sheep and dogs receiving rations deficient in copper. Recent genographic and histological examinations of the bones show a mild degree of osteoporosis. Excess molybdenum is known to produce scouring or "teart" disease in cattle. Feeding additional copper will reduce the toxic properties of molybdenum and also the xanthine oxidase (a molybdenum containing enzyme) content of the body. Methionine or inorganic sulfur and vitamin B<sub>12</sub> also play a very

important role in reducing molybdenum toxicity.

Molybdenum	Copper
	Xanthine Oxidase
	S
	Vitamin B <sub>12</sub>

This metabolic pattern outlines the relation of molybdenum and copper to sulfur and vitamin B<sub>12</sub>. It also further stresses the role of sulfur and vitamin B<sub>12</sub> to trace element metabolism.

Unpublished results demonstrate that sulfur metabolism is related to manganese metabolism as well as calcium and phosphorus. One of the interesting factors influencing calcium and manganese metabolism is temperature. Animals subjected to high temperatures excrete more and retain less calcium and manganese than those subjected to normal temperatures.

Manganese is a trace element required for bone formation. Breeding animals fed rations deficient in manganese produce young with shorter and thickened bones than in normal animals. A deficiency of manganese influences bone phosphatase and results in lowered manganese content of the bones. Inorganic sulfur increases urinary excretion of manganese.

# STRESS

Nutritional stress is a common subject today. By nutritional stress we refer to conditions under which we can sharpen or make more measurable responses to known nutrients. Factors or conditions used in producing nutritional stress are:

1. Excessive use of vitamin D (this reverses the expected response to normal vitamin D).
2. Amino acids out of balance.
3. Excessive usage of one trace mineral upsets metabolism or requirement of another.
4. Excess calcium phosphate increases need for additional vitamin D and zinc.
5. Certain hormones when used in excess influence mineral metabolism.
6. Heat can be used to increase requirement for certain minerals.

## SUMMARY

There are many minerals associated with bone metabolism. The relation of calcium and phosphorus to the trace elements copper, molybdenum, zinc and manganese is very important as well as the interrelationship of these trace elements to each other, to sulfur metabolism and also to vitamin B<sub>12</sub>.

The role played by natural feedstuffs in controlling the mineral balance as

demonstrated by the phenomena of recycling of minerals is important and will become more apparent as we use highly purified diets.

Fluorine is an integral part of the bone mineral fluoroapatite. It plays a unique role in human nutrition — as the cause of widespread fluorine intoxication and as a preventive factor, in appropriate doses, in the incidence and severity of dental caries.

## Is It Tuberculosis?

WILMA C. SACKS, M.D.\*

Tuberculosis is an infectious disease, caused by the *Mycobacterium tuberculosis*. This is a fact that we learned in our medical school days. But sometimes we have a tendency to forget this and believe that tuberculosis is a disease which produces a certain x-ray picture. This statement is certainly not made with the idea of minimizing in any way the paramount importance of x-ray in making the diagnosis and following the progress of the disease. But a diagnosis made on x-ray alone can all too frequently be an incorrect one. And the disruption of the life of the patient and his family, the economic consequences, and the difficulty of his returning to normal life, make a mistake here, a crucial one.

Conditions which may simulate tuberculosis on x-ray include bronchiectasis, pneumonia, neoplasms, pulmonary fibroses (such as silicosis), sarcoidosis, and fungus infections. In Arkansas the incidence of histoplasmin sensitivity is high and the possibility of histoplasmosis should be kept in mind when symptoms and x-ray findings suggest tuberculosis. (See Map Fig. 1). The patient should be given intradermal tuberculin (preferably PPD Intermediate strength) and

histoplasmin tests. When the test is made with freshly prepared material, failure to react to the tuberculin test, particularly on repeated testing, can be considered to rule out tuberculosis.

Finally, the absolute criterion of active pulmonary tuberculosis is the demonstration of virulent tubercle bacilli in the sputum, gastric contents, or tissues. Repeated failure to find such organisms indicates inactive disease or non-tuberculous pathology.

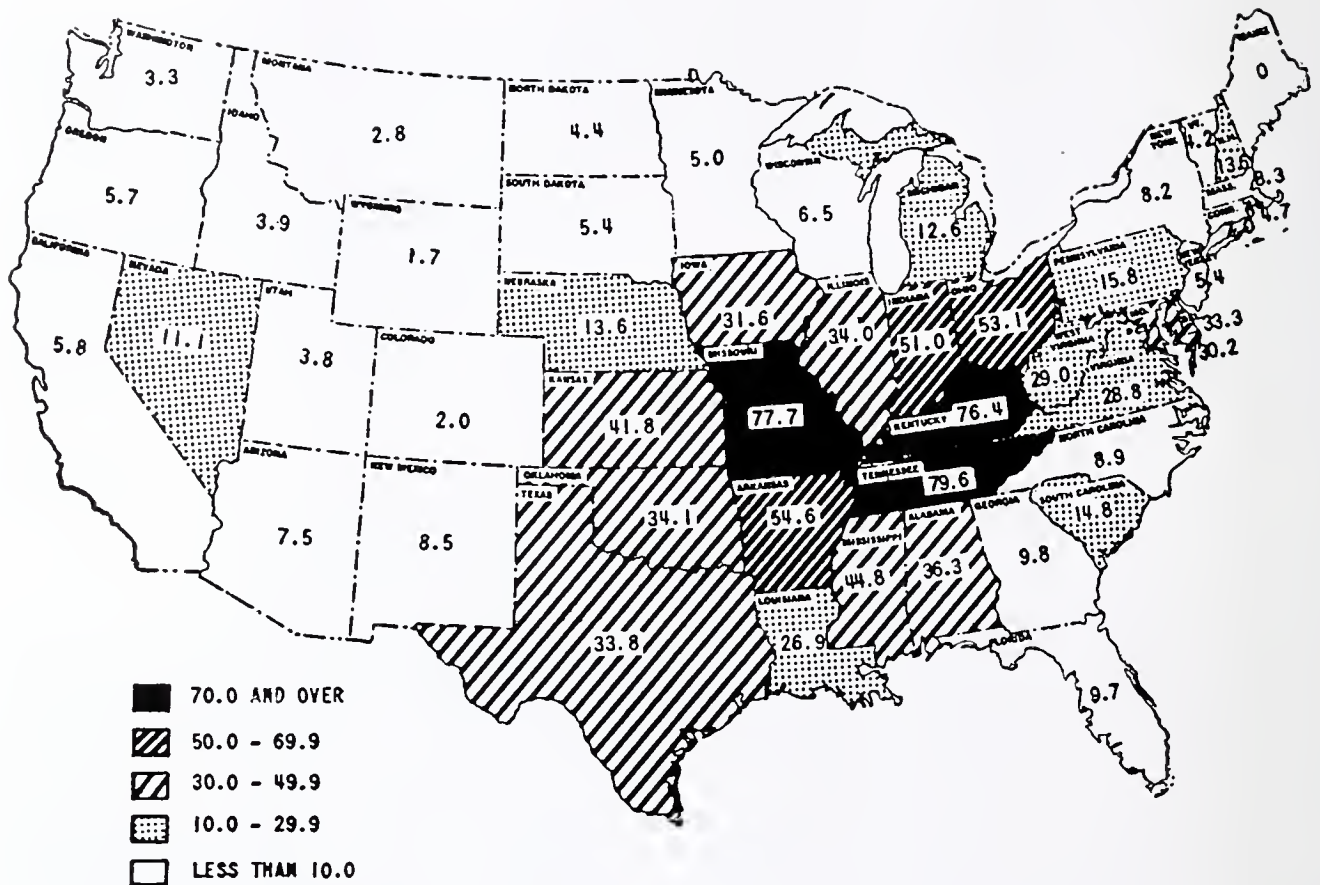
With these criteria in mind, the author examined the records of patients listed on the tuberculosis summary in Washington County. A number of these were diagnosed as moderately advanced or far advanced active tuberculosis, but at no time had positive sputum been found. Most of these patients had spent varying periods of time in the Sanatorium, during which sputa were examined by smear and culture and repeated x-rays taken. Skin tests had not been done.

Some of these patients had been given leaves of absence from the sanatorium or had been discharged as arrested cases. Letters were sent requesting that they come to the Health Unit for skin tests. Out of a case register list of some 200, 24 patients with negative sputa were skin tested. Of these, 21 had negative

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\*Combined data from Christie, Palmer, Smith, Loosli, and Beadenkopf





\*COMBINED DATA FROM CHRISTIE, PALMER, SMITH, LOOSLI, AND BEADENKOPF

FIG. 1. Percentage of persons positive to histoplasmin by state

tuberculin tests. Fifteen of them had positive histoplasmin tests. One patient with negative sputum who had a positive tuberculin and positive histoplasmin test was admitted to the Sanatorium and later discharged with the diagnosis of non-tuberculous pathology.

A few representative case histories may be of interest.

Case 1: T. M., Age 46, w-m. Patient had a mobile unit x-ray on 9-18-54, reported as negative. In October he developed a cough and some weight loss. X-ray taken by his physician and sent to the Sanatorium was read as moderately advanced tuberculosis and patient was admitted to the Sanatorium 10-29-54. Re-examination of the mobile unit x-ray was read as an early pneumonic process. Sputa were consistently negative. The patient was given tuberculin and histoplasmin tests on 5-12-55. These were both negative. He was discharged from the Sanatorium on 8-4-55 with a diagnosis of moderately advanced tuberculosis, arrested. Sputa continued to be negative on

smear and culture. The tuberculin test was repeated on 5-23-56 and was again negative. The case was closed as not constituting a health hazard. This probably represents a non-specific pneumonitis, rather than tuberculosis.

Case 2: R. H. D., Age 66, w-m. Patient admitted to the Sanatorium 4-27-48 with the diagnosis of moderately advanced tuberculosis. He was discharged on 5-18-48 as an arrested case. In August 1954 he had two hemoptyses. An x-ray taken was reported as "unimproved" and Sanatorium care was advised. Sputum was negative on smear and culture. Tuberculin test on 2-16-55 was negative, histoplasmin positive. The patient had another hemoptysis in 1956. He was referred by his family physician to a chest specialist in Ft. Smith. The latter diagnosed the pulmonary condition as bronchiectasis. The patient also had a hypertensive cardiovascular disease of which he died 10-2-57.

Case 3: M. H., w-f, Age 66. Diagnosed as far advanced, active tuberculo-

## IS IT TUBERCULOSIS?

sis. Admitted to the Sanatorium 5-22-50. Discharged 2-22-51 as arrested. Sputa were always negative. An x-ray taken 1-26-55 was reported as showing "unimprovement" and she was advised to return to the Sanatorium. Tuberculin test on 3-2-55 negative, histoplasmin positive. Tuberculin test repeated 3-20-57 and was negative. It was again repeated 7-1-57 and again was negative. Numerous sputa were negative on smear and culture. A complement fixation test for histoplasmosis was negative, indicating lack of activity. The case was closed 7-16-57 as non-tuberculous pathology.

Case 4: J. E. Y., w-m, Age 26. Patient admitted to Sanatorium on 5-25-54. The diagnosis was far advanced active tuberculosis. (miliary tuberculosis). He was given extended leaves of absence beginning in August 1954. He was entirely asymptomatic but with this diagnosis had to be treated as a case of active tuberculosis. Tuberculin test done on 3-23-55 was negative. The histoplasmin test was 2 plus. Complement fixation test for histoplasmosis was negative. In order to reach a definitive diagnosis, the patient agreed to return to the Sanatorium on November 2, 1955. A series of gastric contents were taken for culture and guinea pig inoculation. These were all negative and the patient was discharged from the Sanatorium with the diagnosis of histoplasmosis, inactive.

In spite of the fact that the death rate from tuberculosis has decreased greatly, the number of cases has declined only slightly. Tuberculosis remains our most important and widespread communicable disease. What has been said, therefore, is not in any way intended to minimize either the magnitude or the urgency of the tuberculosis problem. But because it is of such great concern and because the diagnosis brings with it all the emotional, financial, and social problems involved, the diagnosis is one in which a mistake is harmful both to the patient and the community.

### Summary and Conclusions:

1. The importance of accurate diagnosis in suspected cases of tuberculosis is stressed.

2. Representative case histories of patients diagnosed as tuberculosis but having other pulmonary diseases are used as illustrations.

3. The importance of using all diagnostic methods especially skin tests, sputum studies, as well as x-ray, is emphasized.

4. Finally, in view of the great importance of this disease, when we ask ourselves the question, "is it tuberculosis?" it is essential that we be sure we have the right answer.

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The author wishes to thank Dr. L. D. Zeidberg of the Tennessee Department of Public Health, for permission to use the map showing percentage of persons positive to histoplasmin by state.

The Washington County Tuberculosis Association paid for tuberculin and histoplasmin material used for this study.



# X-Ray Casefinding Programs in the Control of Tuberculosis

Since the 1940's mass radiography of the chest has been a fundamental technique in the detection of tuberculosis in this country. In 1956 approximately 70,000 new active cases of tuberculosis were discovered, a substantial portion of the total by this means.

As originally constituted, mass x-ray surveys had community-wide application and were designed to reach from 70 to 80 per cent of the adult population within a limited time. The rationale that motivated this method of attack was that most of the unknown active cases in the population would be discovered and eventually isolated, treated, and rehabilitated, and that presymptomatic disease would be discovered at a stage before irreparable lung damage had been done.

The only limitation or selection imposed upon these community-wide survey enterprises, in actual practice, was a minimum age. Persons younger than 15 years of age were usually excluded because of both the difficulty of obtaining satisfactory films and the low yield of cases among children. The working assumption was that tuberculosis was a problem of the general adult population and called for widescale intensified attack.

In the last 15 years the tuberculosis problem has changed radically. There are areas of the country where active tuberculous disease is almost non-existent. And there are many other areas where tuberculosis continues to be a serious public health and medical problem. There are a number of special groups that carry a heavy burden of tuberculosis and constitute a fertile source of future cases. Thus, tuberculosis continues to be a stubborn problem, and x-ray casefinding remains a primary factor in its solution. However, the emphasis has shifted as the tuberculosis control challenge has changed.

Perceiving the nature of this change, the Public Health Service has been supporting for some time the selective use of mass x-ray survey facilities and has promoted their application in population groups at high risk of infection and dis-

ease, such as, hospital admissions, patients and employes in mental hospitals, inmates of correctional institutions, low economic groups, particularly those in slum areas, migrant laborers, alcoholics, and others. Contacts or open cases and persons with symptoms typical of tuberculosis constitute other groups that should receive prime attention in case-finding activities.

In applying the principle of selectivity, the yield of new cases should be a strongly influencing factor in establishing priorities for survey programs. Nevertheless, it is recognized that within the identifiable types of population groups suitable for x-ray casefinding, there are wide ranges in the number and rate of discoverable cases. Therefore, no nation-wide priority can be established on the basis of gross categories of population. Necessarily, priorities should be determined by the epidemiological demands of the particular local situation. For example, the range of rates of newly discovered cases in correctional institutions (see attached table) indicates that this population group may deserve a very high or a very low priority, depending upon the particular local situation.

Selection of areas of case-finding activity should also be determined by the quantity and quality of available follow-up, diagnostic and treatment facilities, cost, availability of personnel, and by the community's potentiality for making the maximum utilization of survey findings. When x-ray screening is planned for any group, it is essential that facilities for differential diagnosis be provided so that virtually all clinically significant cases of tuberculosis will promptly come under medical care. Where such facilities are limited, x-ray screening programs should be so restricted as to insure adequate diagnosis and medical care of new cases found.

In low prevalence groups, tuberculin skin testing is useful as a first step in casefinding. X-ray activities could thus be restricted to reactors to tuberculin. As a result, the necessity of screening the whole population would be obviated.

\*U. S. Department of Health, Education, and Welfare, Public Health Service, Tuberculosis Program

Examples of Yield of Tuberculosis X-Ray Casefinding Activities  
In Certain Population Groups, 1954-1956

Population Groups	Number of Screening Films Taken	Number of New Active TB Cases Found	Rate of New Active TB Cases Brought to Diagno- sis Per 1,000 Screening Films Taken	
			Average	Range
Community Zone	3,173,578	1,317	0.6	0.0- 6.6
Institutions				
Mental Hospitals	6,749	16	2.4	1.2- 3.5*
General Hospitals	410,801	429	1.0	0.4- 1.6
Correctional Institutions	48,950	203	4.1	0.0-12.0
Industrial	285,160	136	0.5	0.0- 4.4
Special Problem Groups				
Indians	4,830	26	5.4	0.0-17.6
Migrant Labor	3,616	20	5.5	5.0- 7.0*
Schools	204,083	37	0.2	0.0- 2.1

\*Less than 5 surveys

Note: This table is based on case-finding activities in which the duration and intensity of follow-up vary. The rates shown above have not been adjusted for incompleteness of follow-up. When an adjustment factor is applied to the groups classified as "Community Zone," an average rate of 0.7 results. In the "General Hospital" category, the adjustment factor increases the average rate to 2.2 cases per 1,000 persons X-rayed.

Source: Special inquiry made in 1956 by Regional Staffs of the Public Health Service. This table is based on all applicable data collected in that inquiry. The data therefore do not give an unbiased estimate of the yield in the different population groups.

January, 1958  
TB Program

In consequence, the Service proposes that every community evaluate on a continuing basis its tuberculosis problem, its specific needs and its resources, so that x-ray surveys may have maximum effect in terms of number of cases found, the reduction of the reservoir of unknown infectious cases, and through adequate and enduring follow-up activities, the breaking of chains of infection.

For many years it has been known that there is a risk of excessive radiation exposure involved in the use of x-ray machines. Current findings in this field that emphasize the significance of relatively low level radiation exposure now serve to focus attention on the need to maintain and operate x-ray equipment in such a way as to eliminate all unnecessary radiation.

To achieve this purpose, the Public Health Service recommends the following procedures: Systematic inspection should be made of all x-ray case-finding equipment, so that radiation exposure to the population may be reduced as much as possible. Photofluorographic x-ray equip-

ment should be inspected prior to the beginning of a survey and at frequent intervals thereafter. Of particular importance in this connection are: (a) permanent installation of the proper size cone, so as to limit the field of radiation to the area of the fluoroscopic screen of the photofluorograph; (b) the interposition of a filter of at least two and a half millimeters of aluminum in the useful x-ray beam to eliminate the soft radiation; (c) radiation levels at locations where technical and other personnel are situated and where incoming and outgoing examinees are stationed should be consistent with the standards set forth in the National Bureau of Standards Handbooks 59 and 60.

A committee of experts has had under review for some time the problems associated with radiation exposure. It is their considered judgment that the risks inherent in such exposure, although important, are relatively small compared to the very great benefits to be achieved from chest x-ray case-finding programs when



conducted within the principles set forth in this document.

## SUMMARY

The following, then, are the guiding principles that unify the policy of the Public Health Service as it bears upon tuberculosis x-ray case-finding activities:

1. Mass radiography of the chest, operated under competent auspices, is a fundamental technique in the detection of tuberculosis.

2. Mass x-ray casefinding should be applied selectively in groups at high risk of tuberculosis infection and disease.

3. All tuberculosis x-ray survey programs should have the prior approval of the applicable State or local health department.

4. Consideration should be given to the tuberculin test as an initial screening device in low prevalence groups.

5. Every community should evaluate on a continuing basis its tuberculosis problem, needs and resources, so that local x-ray surveys may have efficient use and maximum effect.

6. Adequate safeguards should be utilized to protect all persons from unnecessary radiation.

# ◆ What's NEW ◆

## Dermatology

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The major recent advances in dermatology, as in many other medical sciences, have been in pathologic physiology and biochemistry. However, many developments in practical therapeutic dermatology have also occurred.

### MONILIASIS

Fungus and yeast infections have long proved themselves a challenge to any therapeutic agent. Several preparations have met this test most effectively. *Coincident to the widespread use of antibiotics, infections due to Candida albicans (moniliasis) have become much more common in recent years.* This is true for yeast infections in the genital (Fig. 1.) and perianal areas, paronychia tissues, intertriginous sites and even generalized systemic moniliasis. The use of topical cortico-steroid and/or bacterial antibiotic preparations for anogenital pruritus or irritation may be followed by a

monilial infection. *The recent introduction of nystatin (Mycostatin®) affords a clean, pleasant, and very effective mode of treating such surface monilial infections but it is ineffective in other superficial fungus infections.* Mystatin is available as an ointment for topical use, in vaginal tablets, dusting powder, and in an oral suspension and tablets for involve-

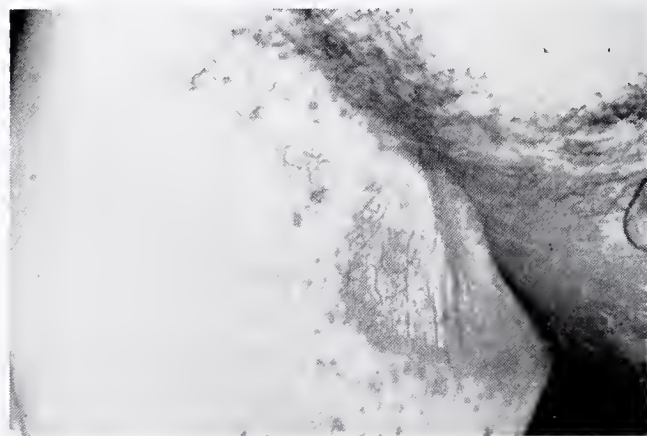


Fig. 1. MONILIASIS: Note involvement of scrotum and the satellite lesions.

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ment of the mouth and intestinal tract. Even though nystatin is so effective, it is necessary to eliminate or control factors ordinarily associated with moniliasis, such as the use of antibiotics and corticosteroids, chronic exposure to water, obesity, hyperhidrosis, and diabetes.

#### DEEP FUNGUS INFECTIONS

For the first time a truly promising therapeutic agent for a number of the deep fungus infections has been developed. *Amphotericin B administered intravenously, is proving to be much more effective in the control of North American blastomycosis than is the stilbamidine group of drugs.* In addition, histoplasmosis, cryptococcosis, and possibly coccidioidomycosis have shown a favorable response to this same agent. The period of observation following the administration of amphotericin B has been limited to date, and evaluation of its ultimate effectiveness must necessarily be withheld at present. However, early reports give every evidence that this drug will be truly effective. Unfortunately the advances in treatment of superficial fungus infections such as those producing tinea capitis, onychomycosis, or more refractory types of tinea pedis and tinea cruris have not been as rewarding. It is important, however, to mention that further evaluation of the epidemiologic aspects of tinea pedis show that attempts at prevention through the use of foot baths at showers and pools, or sterilization of stockings and shoes are futile. It would appear that host resistance is more important than either the virulence of the organism or the degree of exposure.

#### GRENZ-RAY

*Although grenz-ray or ultra-soft x-ray is not a new development, this modality of radiation in the treatment of non-malignant diseases of the skin is becoming more prominent.* In spite of the recent emphasis on the dangers associated with radiations of all types including those obtained through medical, diagnostic, and therapeutic sources, it is still the considered consensus of opinion among competent dermatologists that certain cutaneous diseases either malignant or benign are properly treated by x-radiation. Since grenz-ray is a "soft" x-ray, a ma-

jority of the radiation is absorbed in the epidermis itself with very little of the ray penetrating to the deeper vascular and appendageal structures. Its margin of safety is therefore much greater than with the more conventional types of superficial x-ray. Certain life-ruining or nuisance diseases as persistent anogenital pruritus, lichen planus, neurodermatitis, or chronic non-specific eczemas can be greatly improved by grenz-ray therapy when it is used in connection with a complete dermatological regimen. It is nevertheless true that the antibiotics and steroid compounds in particular, have reduced the number of cases in which x-ray treatment of any type is necessary.

#### LUPUS ERYTHEMATOSUS

Heavy metal therapy in discoid lupus erythematosus has virtually been discontinued. In both the discoid and subacute varieties of lupus erythematosus anti-malarial agents such as Antabrine®, Aralen®, Placquenil®, Camcquin®, and others have proved most effective. It may be necessary to try any one or several of the antimalarial compounds until the most effective one is found. Unfortunately maintenance doses are necessary for long periods of time, and relapses following discontinuation of therapy are frequent. In acute systemic lupus erythematosus, skillful use of cortico-steroid compounds has been lifesaving. With prolonged cortico-steroid maintenance therapy, it has been possible to keep patients with systemic lupus erythematosus in good health, with the disease completely arrested and without remarkable side effects from the drugs.

#### VITILIGO AND MELASMA

Until recently no therapy had been available for vitiligo (depigmented areas of the skin). In the past few years 8-methoxypsoralen (Oxsoralen®) has been used topically and by mouth in the treatment of vitiligo. These agents when combined with cautiously regulated sunlight exposure have produced satisfactory repigmentation in approximately 30 per cent of the treated case. Since a severe blistering reaction can occur, especially with the topical agent, its use must be carefully controlled. Results may not be apparent for several months after



treatment is begun. Areas of hyperpigmentation such as the melasma of the face during pregnancy, can be effectively treated with the monobenzol ether of hydroquinone (Benoquin ®). This agent is available in a cream and liquid form, and when used cautiously can evoke satisfactory depigmentation. Its primary drawback is that some people develop a contact sensitization to this preparation.

#### SURGICAL PLANING

Dermabrasive surgery or planing of the skin with a rapidly rotating wire brush continues to be an effective treatment for the removal of acne scars and other superficial skin lesions. Planing is done as an office procedure under a local spray-type refrigerant anesthetic, with patients being followed on an outpatient basis. *Not only is it effective in treating certain people with acne scars, but selected cases of resistant active acne vulgaris also respond well to this treatment.* Recently dermabrasive surgery has been recommended for treating extensive premalignant senile keratoses on the face, hands, and arms. To obtain the greatest degree of improvement it may be necessary to repeat the surgical procedure several times at two or three months intervals. Complications to the procedure as hypertrophic scar formation or pigmentary changes have not been of significant incidence.

#### CHEMOSURGERY

Removal of cutaneous malignancies by the chemo-surgical technique of Mohs' is being more widely accepted. Although it was originally advocated for the treatment of recurrent cutaneous carcinomas that has already been excised and/or irradiated, its use as a primary modality, particularly in such troublesome areas as the maso-labial fold, inner canthus of the eye, and retroauricular area is being advocated. The bulk of the tumor is excised and then zinc chloride is used as an insitu tissue fixative. The zinc chloride fixes the tissue so that subsequent frozen microscopic sections can be made from carefully oriented areas of the remaining tumor surface. The paste is reapplied to areas that show malignancy after microscopic examination, and these

areas are again excised and examined microscopically until all the tumor has been eradicated. It offers the distinct advantage of microscopic control and the selective destruction of tissue containing tumor without unnecessary removal of normal tissue. *The procedure is usually completed in three or four days, and its excellent cure rate in cases not amenable to surgery or x-ray warrants its acceptance.*

#### LIQUID NITROGEN FOR VERRUCAE

Verrucae continue to be a therapeutic problem. This is especially true for the verruca plantaris. *Liquid nitrogen has been an extremely effective agent in the*

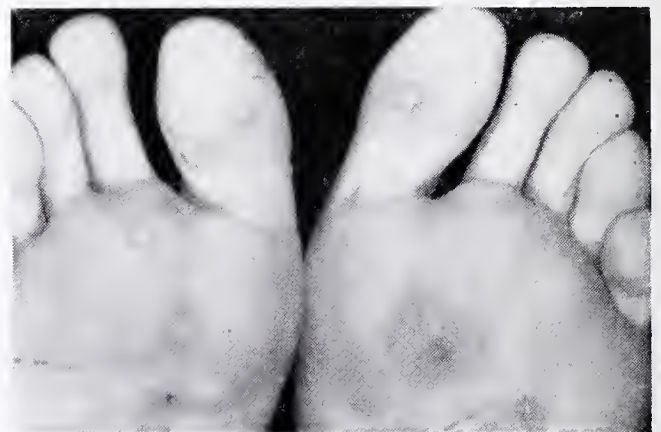


Fig. 2. PLANTAR VERRUCAE: Before and after liquid nitrogen therapy. Note absence of scar formation.



*treatment of verrucae of all varieties.* (Fig. 2) It has the distinct advantage of healing without residual scar formation. This is most important in treating the verruca plantaris, where any scar may subsequently be surrounded by a callus that may cause as much discomfort as the wart itself. After the wart is trimmed the liquid nitrogen is applied with a small applicator for a period of from 20 to 60

seconds. While the procedure is associated with local pain and discomfort at the time of treatment and for 24 to 48 hours thereafter, the treatment is not incapacitating, and the patients can go about their routine activities without interruption. Within a two week period the verruca has either separated from its base or can be trimmed with a scapel. If any of the verruca persists, retreatment is indicated at that time. Small or more superficial verrucae may respond to a single application of the liquid nitrogen. Periungual verrucae and large planar verrucae may require retreatment a number of times.

#### AXILLARY GRANULOMA

In addition to the above mentioned therapy, a number of diagnostic problems have come into recent prominence. A condition called axillary granuloma has been observed within the past year. This condition is characterized by fine brownish red papules that lie in the perifollicular regions of the axillary vaults. Most people who have developed this condition have a tremendous amount of pruritus and pain. The condition persists for long periods of time, and biopsies made from these papules reveal a foreign body type of granuloma. *Most individuals with axillary granuloma give a history of having used a stick deodorant containing zirconium lactate.*

#### KERATOACANTHOMA

Another condition that is seen in Arkansas in significant numbers is keratoacanthoma.<sup>3</sup> This is a benign rapidly growing tumor that may occur singly or in numbers, especially on the face, arms, and hands, having every appearance of a malignancy. It is characterized by a brownish black central keratin plug and an elevated rolled epidermal margin. The lesion may grow to a size of several centimeters in a short period of time. Since these tumors resemble squamous cell carcinoma on microscopic section, yet involute spontaneously, they have been called self-healing squamous cell carcinoma. Although these lesions are benign and will heal spontaneously over a several month period, the degree of scar formation that remains from spontaneous involution is usually as severe or more severe than

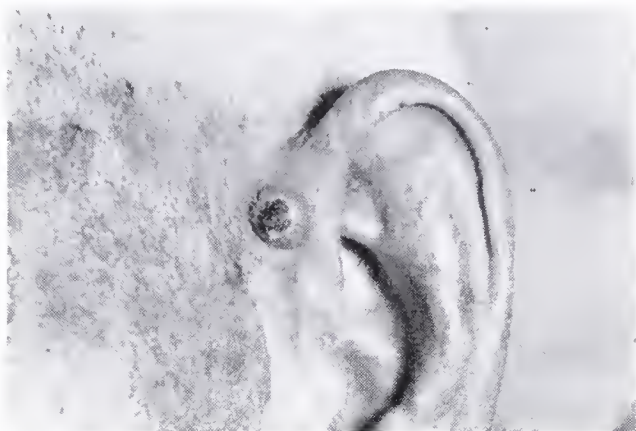


Fig. 3. KERATOACANTHOMA: Note the similar appearance of these lesions in different individuals.



would occur if the area had been primarily excised or treated by biopsy, electrodesiccation and curettage.

#### DRUG REACTIONS

The widespread acceptance of a number of the newer drugs makes it important to call attention to the reactions to these drugs now being seen. Chlorpromazine (Thorazine ®) has produced a high percentage of contact dermatitis in people handling the drug, such as nurses. In addition to this contact sensitization, a type of photo-sensitization reaction on exposed areas occurs in people handling the drug as well as those taking the drug by mouth. Adverse reactions have been reported during the administration of meprobamate. These reactions include a generalized toxic erythema, capillary fragility characterized by petechia, and urticaria.

As mentioned in the opening paragraph, the greatest recent advances in dermatology have been in both normal and abnormal physiology and biochemistry. It will only be through a better understanding of keratinization, pigment



formation, cutaneous vascular response, and the biochemical function of the appendageal structures that less empiricism and more specific therapy will be realized in dermatology.

#### SPECIFIC TEST FOR SYPHILIS

In conclusion it is probably well to mention that the effectiveness of penicillin in syphilis has reduced the incidence of this disease so that this illness no longer plays an important part in the practice of dermatology. *Today probably 50 per cent of the positive serologic*

*reactions for syphilis are biologic false positive reactions.* The recent advent of the *Treponema pallidum* immobilization test (TPI) or *Treponema pallidum* complement-fixation test (TPCF) has greatly clarified the problem of biologic false positive reactions in the United States. *With one of these tests it is now possible to conclusively differentiate the biologic false positive reaction from true syphilis.* These tests are available through Federal public health laboratories and some private laboratories.

## A TEACHING SEMINAR FROM THE UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

# Surgery in the Diabetic Patient

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Recent years have witnessed a changing scene in the surgery of diabetic patients. The diabetic patient of today has a much better prognosis than his counterpart of just a few decades ago. Operative procedures are not only less hazardous to life but morbidity has been reduced and often an operation of lesser magnitude will suffice. Especially is this true when one is dealing with infections and gangrene. Insulin ushered in the modern era of surgery by giving a means of controlling diabetes *per se*. Antibiotics effective in controlling bacterial infection have again revolutionized many of the previously held surgical concepts. The many other advances which have made surgery safer for all patients apply equally well to the diabetic.

With modern management, a diabetic patient may be evaluated for surgery in about the same light as a non-diabetic of comparable physiologic age. Several days' hospitalization preoperatively for

control and study are desirable for this purpose. Close teamwork between the internist and surgeon have repeatedly demonstrated the advantages of this association. As the average age of diabetics requiring surgery is increasing, the problems encountered are more and more those of surgery in the aged. Degenerative vascular changes not only are prone to occur in diabetics but at an earlier period of life. Operative mortality increasingly reflects the result of vascular complications involving the heart, lungs, brain, and kidneys.<sup>1 2</sup> Close preoperative scrutiny of these structures is mandatory. Digitalization may be required or azotemia corrected. Liver function should be evaluated. Leevy and associates found evidence of hepatic damage in 39 per cent of 148 diabetic patients studied.<sup>3</sup> Anemia, often present, requires transfusions. Special care must be taken to prevent overloading the circulation in the administration of parenteral fluids pre and postoperatively. The benefits of early ambulation are especially desired

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in the postoperative period. Anticoagulant therapy may also be indicated at this time. While consideration of the control of the diabetes *per se* is beyond the scope of this discussion, it should be mentioned that the main concern of the surgeon is to avoid acidosis and prevent hypoglycemia. The latter is particularly dangerous in the elderly patient. Preventing hyperglycemia itself is not the major concern, in fact mild hyperglycemia is preferable to too rigid attempts at control. Inasmuch as insulin requirements following surgery are not entirely predictable, we usually elect to control these patients wholly or at least in part with regular insulin.

Most surgical procedures can be performed on an elective or semi-elective basis. It is indeed becoming an unusual circumstance for the surgeon to be forced to perform an emergency operation in the face of uncontrolled sepsis in a patient with severe hyperglycemia and acidosis. Severe necrotizing carbuncles, formerly such a problem, are infrequently encountered. Emergency amputation, with its accompanying high mortality, for spreading infection and gangrene can be postponed until the diabetes and systemic reaction is controlled. Antibiotics are usually effective. If not, "physiologic amputation" may be achieved by refrigeration and application of a tourniquet as advocated by Large and Heinbecker.<sup>4</sup> Surgical amputation may then be performed later above the tourniquet and refrigerated area when control of the systemic reaction and diabetes has been completed. The response with such therapy is usually dramatic. A severely ill semicomatose patient with high fever may be afebrile, alert and enjoy the next morning's breakfast. This method may be used for a week or even longer if complicating factors such as concomitant cardiac decompensation, uremia, or pneumonia complicate the picture. Localized abscesses still require prompt drainage and in certain instances it would be unwise or even impossible to achieve complete diabetic control before operation. This exception and an occasional intra-abdominal emergency comprise about the only times a surgeon's hand is forced. Even then acidosis, if present, can be controlled preop-

eratively though ketone bodies may remain in the urine for twenty-four hours or longer. In this respect it is important to remember that patients in diabetic acidosis may develop acute abdominal symptoms mimicking those of an acute surgical abdomen. Control of the acidosis promptly eliminates the symptoms. On the other hand, acute lesions such as appendicitis and cholecystitis are less apt to subside spontaneously and may run a more rapid fulminating course, often in the face of minimal symptoms and physical signs. A few hours of preoperative preparation and observation in the hospital will usually allow an accurate evaluation and prevent ill advised operations as well as allow a necessary operation to be performed with minimal risk.

Anesthetic agents tending to produce hyperglycemia, acidosis, liver damage, or likely anoxia should in general be avoided. However, the anesthetic of choice for the general condition of the patient and the necessary surgical procedure should govern the selection rather than the presence of diabetes. A well controlled diabetic satisfactorily tolerates most of the common employed agents for general anesthesia. The anesthetist should avoid hypercapnia when using controlled respiration. Spinal anesthesia, procaine 75-100 mgm., is excellent for operations upon the lower extremities.

Peripheral gangrene of the lower extremities remains the largest surgical problem. This deserved special consideration. It has been our experience in a charity hospital that most diabetics with a major amputation never become rehabilitated with a prosthesis. Argument as to whether a below the knee or an above the knee amputation is preferable becomes much less important than in a younger individual requiring amputation because of trauma or Buerger's Disease. We have continued to perform supracondylar amputations in most patients requiring a major amputation. In spite of opinions to the contrary, we feel that this operation is less shocking, requires a shorter operative period and hospital stay, occasions fewer wound and stump complications and carries no greater mortality in a comparable group of patients than amputation below the knee. Ampu-



tation through the leg is used in selected patients with obvious good circulation in whom rehabilitation with a prosthesis seems likely. The important thing is to avoid a major amputation if possible. This can be accomplished more often than in the past.

Glib usage of the term "diabetic gangrene" has undoubtedly confused the issue in the minds of many physicians. Gangrene occurring in the diabetic is a more appropriate terminology. The processes that occur are by no means specific nor peculiar to the diabetic. All gangrene in the diabetic is certainly not the same. Roles of varying importance may be played by a number of different mechanisms. Circulatory insufficiency, peripheral neuropathy and infection are the more important. The key to successful therapy, and by successful is meant avoidance of major amputation, is the correct evaluation of the roles played by each. With antibiotics to control infection, it has become possible to adopt a more conservative approach towards amputation. Many limbs with adequate blood supply formerly amputated can now be saved. Minor amputation of toes or skin grafts to cover areas of superficial slough may suffice.

Where circulatory impairment because of arterial occlusion is the only factor involved, ischemic (dry) gangrene results. Management is no different from that of arteriosclerotic gangrene in the non-diabetic patient. There is perhaps some greater tendency for secondary infection to supervene if the part is not properly protected.

Peripheral neuritis with hypesthesia or anesthesia predisposes to traumatic injury. Prolonged pressure, such as from an ill fitting shoe or from an abnormal position maintained unduly long, may produce local thrombosis of vessels with resultant ischemic (dry) gangrene even though adjacent areas have ample blood supply. In many respects, this resembles the decubitus ulcer of the paraplegic. Tissue loss may be quite superficial. Perhaps more often decreased sensitivity results in a traumatic wound which becomes secondarily infected with an infected (wet) gangrene being produced. This may remain local or become wide-

spread. Trophic ulcers and the penetrating ulcer about a callus are good examples. Often the subjacent bone or joint is involved. Radiograms are frequently confusing; osteoporosis and osteomyelitis may be impossible to differentiate. Major amputations can usually be avoided.

Sometimes a fulminating infection results in necrosis. The increased metabolic demands of the infection become too great for the local blood supply. Often there is adequate circulation to preserve the foot if the infection is controlled promptly.

While single factors causing gangrene have been described for illustrative purposes, more often several are present in variable degree. It may be quite impossible to assess the relative role of each, especially the more important degree of circulatory embarrassment, until inflammation and swelling have subsided and a period of observation has passed. Pulsations of the smaller arteries of the feet are especially apt to be masked. The urge for early amputation should be resisted. The patient should be placed at bed rest with the extremity protected with a cradle and nonconstrictive dressings. No local heat should be applied. The diabetes should be controlled and appropriate antibiotics administered. With infection localized, abscesses may then be adequately drained, necrotic tissues including bone debrided and necrotic toes amputated. The ability of the wounds to heal is observed. With antibiotics, the spread of infection and gangrene is much less to be feared than in the past from these local debriding procedures. Healing is accelerated. Primary closure of wounds is permissible in selected cases. Granulating wounds may later be covered with skin grafts. Conservatism should be the rule. A partially crippled or deformed foot or even part of a foot which is capable of some weight bearing is to be preferred in these elderly diabetics rather than a major amputation. The latter too often results in complete invalidism rather than the naively anticipated earlier rehabilitation with an artificial prosthesis.

What the future may hold for surgery in the diabetic is an interesting speculation. The surgical treatment of diabetes has tantalized surgeons since the inter-

relationships of the pituitary, thyroid, adrenal and pancreas became known. The experiments of Houssay in which the diabetes of depancreatized dogs was ameliorated by hypophysectomy are classical. The improvement in an existing diabetic state following thyroidectomy for thyrotoxicosis or following the removal of a functioning adrenal tumor in Cushing's syndrome has been recognized for some time. Total pancreatectomy for neoplasm of the pancreas in diabetic patients has been followed by reduced insulin requirement. More recently the pituitary and the adrenal cortex have been implicated in the production of the arteriolar degenerative lesions manifest as retinopathy and nephropathy which are so prone to occur in juvenile diabetics. Selye (5) recognizes arteriolar degeneration produced by cortisone administration as part of the disease of adaptation. Degenerative arteriolar lesions resembling those seen in diabetes have been produced in the kidney and retina of experimental animals by the administration of ACTH and cortisone (6, 7). Green (8) reported improvement in the vascular disease of a patient with malignant hypertension and severe diabetes following subtotal adrenalectomy. Poulsen (9) reported marked improvement in the retinopathy of a female diabetic who developed postpartum pituitary necrosis. The reports of Wortham and Headstream (10, 11, 12), Martin and Wilson (13), Malins (14), and Wolff et al. (15) on total bilateral adrenalectomy in juvenile diabetics with severe retinopathy and nephropathy indicate that this operation may offer limited palliation in selected cases. The reports of Kinsell (16), Luft et al. (17), Schimek (18), and others (19) on hypophysectomy are similarly encouraging. While the initial results following these rather heroic operations may sometimes be spectacular, the benefits apparently are of limited duration and possibly of little if any value in patients with far advanced arteriolar changes. On the other hand, the situation is just as serious and the problem parallels in many respects that of the breast cancer patient with progressive metastatic disease. Whether or not more could be accomplished by subjecting these young diabetic patients to

such an operation earlier in the course of their disease remains unknown. A better means of selection of patients might accomplish results which would warrant more universal acceptance of these procedures. At the present time these methods must still be considered to be in an experimental stage. Unfortunately the nature and physiologic effects of the operations performed are such that there is reluctance to apply these procedures until the patient may be beyond substantial benefit.

#### References

1. Rowland, C. F.: Diabetes Mellitus in Surgical Patients, *Brit. Med. Journal*, 1:736 (Apr.) 1952.
2. Blaisdell, E. R.: Medical Management of the Surgical Diabetic. *J. of Maine Med. Assoc.*, 45:214 (Aug.) 1954.
3. Leevy, C. M.; Ryan, C. M.; Fineberg, J. C.: Diabetes Mellitus and Liver Dysfunction, *Am. J. of Med.*, 8:290 (Jan.) 1950.
4. Large, A. and Heinbecker, P.: Refrigeration in Clinical Surgery, *Ann. of Surg.*, 120:707 1944.
5. Selye, H.: *Stress; The Physiology and Pathology of Exposure to Systemic Stress*, Montreal Acta. Inc. p. 581, 1950.
6. Becker, B.: Diabetic Retinopathy, *Ann. Int. Med.* 37:273, 1952.
7. Rich, A. R.; Berthrong, M., and Bennett, I. L.: The Effect of Cortisone Upon the Experimental Cardiovascular-renal Lesions Produced by Anaphylactic Hypersensitivity, *Bull. Johns Hopkins Hosp.* 87:549, 1950.
8. Green, D. M.; Nelson, J. N., and Dodds, G. A.: Effects of Adrenal Resection on Hypertension and Diabetes, *Federation Proc.* 8:60, 1949.
9. Poulsen, J. E.: Recovery From Retinopathy in a Case of Diabetes With Simmonds' Disease, *Diabetes* 2:7 (Jan.-Feb.) 1953.
10. Wortham, J. T. and Headstream, J. W.: The Effects of Bilateral Total Adrenalectomy in Diabetics With Advanced Vascular Disease. Third Annual Report on Stress, 1953, by H. Selye and A. Horava *Acta. Montreal*, p. 195, 1953.
11. Wortham, J. T. and Headstream, J. W.: Adrenalectomy in Human Diabetes—Effects in Diabetics With Advanced Vascular Disease, *Diabetes* 3:367 (Sept.-Oct.) 1954.
12. Headstream, J. W. and Wortham, J. R.: Bilateral Total Adrenalectomy in Diabetics With Degenerative Vascular Disease, *J. of Urology* 74:1 (July) 1955.
13. Martin, E. M. and Wilson, M. L.: Adrenalectomy in Human Diabetes, *Diabetes* 3:375 (Sept.-Oct.) 1954.
14. Malins, J. M.: Adrenalectomy for Vascular Disease of Diabetes, *Lancet* 1:530 (Apr. 28) 1956.



metaphosphate produced markedly higher blood levels than capsules containing either the corresponding base or the hydrochloride alone. In addition, the average levels derived from the tetracycline base or the chlortetracycline base were higher than those produced by the corresponding hydrochloride though lower than those resulting from the mixture containing the base and sodium metaphosphate. In the study with chlortetracycline<sup>6</sup> capsules containing a mixture of the hydrochloride and sodium metaphosphate were also included in the crossover, and the average levels produced by these capsules were the same as with the mixture of chlortetracycline base with sodium metaphosphate.

Although the enhancement of blood levels of tetracycline by phosphate, either complexed to the tetracycline or mixed with the base or the hydrochloride, thus seemed fairly well established, some doubts still remained because certain reliable observers (including many whose results have not been published) failed to confirm the findings with the materials and methods they used. Further confusion seemed to be added by a subsequent report of Welch et al.,<sup>7</sup> who, in repeating a crossover study with capsules of tetracycline phosphate complex and tetracycline hydrochloride with and without sodium metaphosphate, found much higher

cycline base. Dicalcium phosphate and food resulted in lower, and sodium metaphosphate in higher, serum antibacterial activity than was observed in their absence. Oil and sorbitol did not interfere with tetracycline absorption.

Dicalcium phosphate is widely used as a filler in various capsules, including those of the tetracyclines. The authors cite a large number of other studies that implicate the presence of calcium ions as the cause of the reduced absorption of tetracyclines and show that citric acid can partially neutralize this effect. The depressing effect of food on the serum levels of tetracycline is likewise explained by the goodly amount of minerals contained in commercial laboratory diets, and they postulate that the multivalent cations may be responsible for the poorer absorption of the drug. The authors could not explain the failure of citric acid to enhance serum concentrations when administered with tetracycline base in contrast to its marked effect when given as the hydrochloride. However, they hypothesized that the ability of citric acid to enhance serum levels of tetracycline is related to its ability to form complexes unavailable for absorption.

“...Tetracycline hydrochloride and citric acid, in an encapsulated mixture, produced higher serum concentrations and greater urinary excretions, and hence better absorption of tetracyclines, than any other preparation studied...”

of sodium metaphosphate were published simultaneously with the last mentioned report of Welch et al.<sup>7</sup> These data were based on thoroughly controlled studies both in rats<sup>8</sup> and in man<sup>9</sup> and include additional findings that serve to explain, fairly conclusively, the various discrepancies that have been mentioned.

The experiments in rats<sup>8</sup> were carried out to study the effects of citric acid, dicalcium phosphate, sodium metaphosphate, food, oil and sorbitol on the serum antibacterial activity produced by the administration of tetracycline hydrochloride or tetracycline base. Citric acid administered in equal weight with tetracycline hydrochloride gave the highest concentrations of all the preparations studied. No enhancing effect was obtained from citric acid when given with tetra-

addendum to the last mentioned paper of Welch et al.<sup>7</sup> indicates that in their study the capsules of tetracycline hydrochloride, chlortetracycline hydrochloride and tetracycline phosphate complex all contained dicalcium phosphate as a filler, whereas the capsules containing citric acid and sodium hexametaphosphate did not contain any dicalcium phosphate. This could clearly explain the discrepancies noted in that study. Likewise, the inconsistencies in other studies may very well have been due to the presence of calcium as fillers in some of the capsules and not in others.

This, however, fails to explain the most recent findings of Welch and Wright,<sup>10</sup> who compared the absorption of three capsules, each containing 250 mg. of oxytetracycline hydrochloride — one without any adjuvant, one with 250 mg. of citric acid and the third with 380 mg. of sodium hexametaphosphate; no other filler was contained in any of these capsules. In triple

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1. Eisner, H. J., Stirn, F.  
Enhancement of serum le  
*J. Pharmacol. Exper. & Ther.*
2. Kaplan, M. A., Dickison  
F. H. New, rapidly absor  
*biotic Med. & Clin. Therap.*
3. Welch, H., Lewis, C. N., St  
concentrations of three tetr  
single oral dose in man.  
222, 1957.
4. Pulaski, E. J., and Isokane  
blood serum, bile, and pro  
ministration of tetracycline  
drochloride. *Antibiotic Me*
5. Welch, H., Wright, W.  
blood concentrations follow  
hydrochloride, tetracycline  
metaphosphate. *Antibio*
6. Welch, H., Wright, W.  
following oral admin  
chlortetracycline by  
*Antibiotic Med. &*
7. Welch, H., Wrig  
blood concentre  
and chlortetra  
*Therap.* 4:620
8. Dearborn, F.  
J. J., and  
sorption  
4:627-64
9. Sweeney  
J. M.  
certain  
1957.
10. Welch  
hexam  
4:735.

Editorial.  
*The New England Journal of Medicine.*  
258:97-99, (January 9) 1958

# ACHROMYCIN\*V

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*Looks at Smoking*, di





15. Wolff, H. J.: Kennedy, B. J. and Johnson, M. B.: Effect of Bilateral Adrenalectomy on Diabetes Mellitus, *Minnesota Med.* 40:318 (May) 1957.
  16. Kinsell, L. W.; Lawrence, L.; Balch, H. E., and Weyand, R. D.: Hypophysectomy in Human Diabetes; Metabolic and Clinical Observations in Diabetics With Malignant Vascular Disease, *Diabetes* 3:358 (Sept.-Oct.) 1954.
  17. Luft, R.; Olivecrona, H.; Ikkos, D.; Kornerup, T., and Ljunggren, H.: Hypophysectomy in Man, *Brit. Med. J.* 2:752 (Sept. 24) 1955.
  18. Schimek, R. A.: Hypophysectomy for Diabetic Retinopathy, *A.M.A. Arch. of Ophthal.* 56:416, 1956.
  19. Clinico-Pathologic Conference: Surgical Hypophysectomy for Diabetic Retinopathy, *Amer. J. of Med.* 22:949 (June) 1957.
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## RESOLUTION

Whereas God in his infinite wisdom has seen fit to transfer Dr. L. F. Barrier to that heavenly home from whence no traveler returns, and

Whereas Dr. Barrier was a staunch and participating member of a Church and a close personal friend of the clergy, and

Whereas Dr. Barrier was a kind and devoted husband and father doing all within his power to establish happiness in his home, and

Whereas Dr. Barrier served the people of this community in the practice of medicine for many long years with a great skill, and

Whereas Dr. Barrier had served our country in the military forces during the first war against Germany, and

Whereas Dr. Barrier was highly respected by his office staff and by those of us who were closely associated with him in the practice of medicine, and

Whereas Dr. Barrier's many devoted friends and patients will long remember the excellent quality and character of his friendship and services, and

Whereas many people of many types and conditions will miss him and regret his passing, therefore

Be it resolved, by the Pulaski County Medical Society, of which Dr. Barrier was a lifetime and interested member, that we are sorrowed by his departure,

That we extend our deepest sympathy to Mrs. Barrier, to his daughter (Julia), to his son-in-law and grandson (Dr. Cullen and Phillip Barrier Cullen), to his office staff, and to his close friends and patients wherever they may be,

That we shall forward a copy of this resolution to Mrs. Barrier and the Cullens,

That we shall incorporate this resolution in the minutes of the Society, and

That we shall cause the resolution to be published in the *Journal of the Arkansas Medical Society*.

Inscribed by a Special Committee,

D. Harvey Shipp, Chairman

Robert M. Eubanks

Barton A. Rhinehart

# What Is Your Diagnosis?



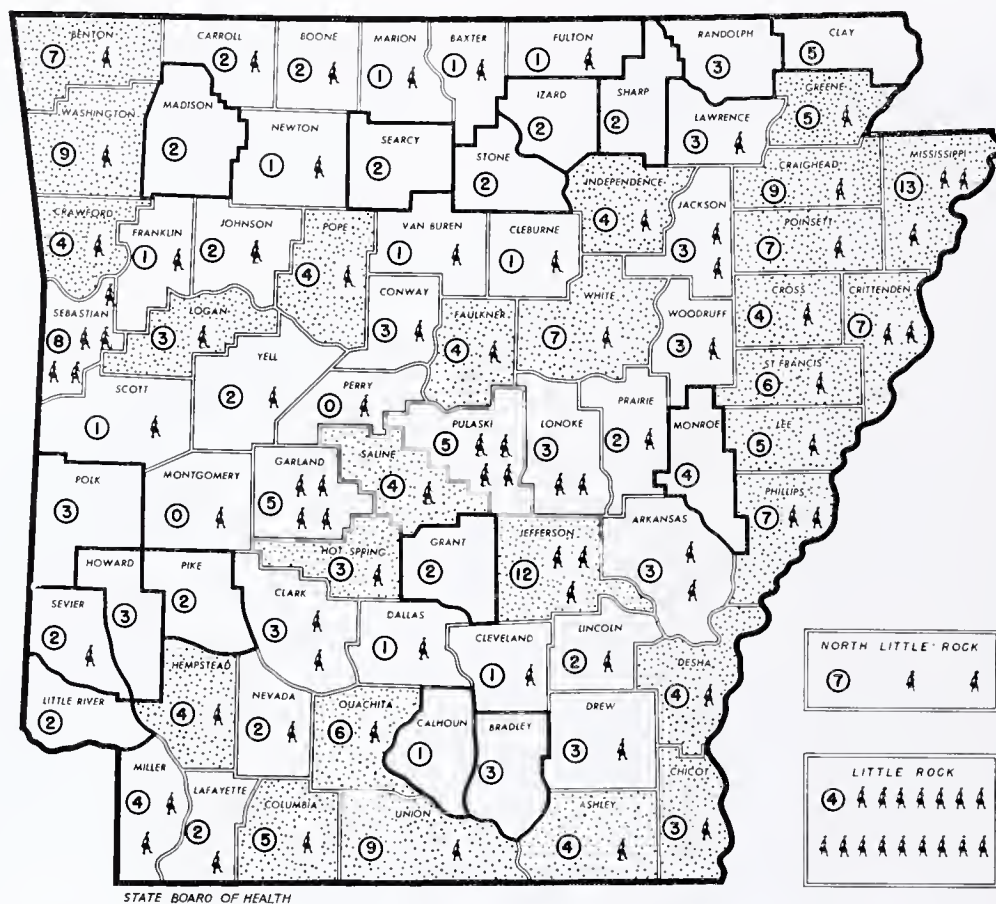
FOR ANSWER SEE PAGE 490



# Arkansas Public Health at a Glance

## PUBLIC HEALTH NURSES

IN ARKANSAS, 1958



- KEY:
- ♂ = ONE PUBLIC HEALTH NURSE ON DUTY
  - ④ = ADDED NURSES NEEDED TO GIVE 1/5000 PERSONS
  - ▨ = LESS THAN 1 NURSE PER 20,000 PERSONS
  - = COUNTIES WITH NO PUBLIC HEALTH NURSE

Public health nursing service, the backbone of public health services, is thinly spread in Arkansas. Public health nursing services are intended to compliment and supplement private medical care and not to duplicate it. A great many of the persons given public health nursing services are either referred *by* physicians, or if otherwise referred, the principle objective is to get the person to the physician.

The accompanying map shows that fifteen counties were entirely without public health nursing service as of January, 1958. Another 27 counties had more than

20,000 persons per public health nurse (as high as 50,000 persons per nurse). The accepted standard ratio is one nurse per 5,000 persons, to render reasonably adequate public health nursing services to the population. This is a modest standard, exceeded for many years by model health departments in other parts of the country. The map indicates the number of additional nurses needed in each county to meet this standard. Note that only two out of the 75 counties, by virtue of their own small population, are not in need of additional nurses.

When a nurse must serve 20,000 or more persons, what does she do? How can she intelligently plan her time when her work

\*Sponsored by the Arkansas State Board of Health.

load is 4 to 10 times what it should be? By arrangement of the Nursing Division, the State Health Department Division Directors have given some aid to the nurses by dividing the work involved in their programs into priority groups according to degree of urgency. For example, the Maternal and Child Health Division considers that a public health nurse should render immediate nursing assistance to a family with a pre-mature baby born at home, even if it means going out at night or on weekends. An infant at home with diarrhea or untreated syphilis would likewise rate first priority, and so would an infant with a cleft lip, or a pregnant mother with severe toxemia, bleeding or untreated syphilis. In priority 2, to be visited preferably within a week after the first report, fall such situations as club foot in a newborn infant, rheumatic fever or other crippling conditions calling for nursing services, severe nutritional disorders, and moderate complications of pregnancy. Reserved for priority 3 are such items as acute problems with school children, supervision of midwives suspected of misconduct or neglect, and congenital deformities less urgent than those above. Priority 4 includes such items as routine health services to children in families

with tuberculosis or other special problems, and not until priority 5 do we find such items as routine child health supervision of infants in general. Other Divisions have their programs similarly subdivided, according to degree of urgency.

A good health program should include work in all 5 priorities, in all Division areas it is all important to the community's health. However, a nurse trying to serve 20,000 or more people often has to spend too much of her time meeting emergencies, with lower priority work she has previously scheduled consequently being disrupted. This is emotionally demoralizing and physically exhausting, so that many nurses have given up after trying to serve for a time under these circumstances.

Public health services were first established in this state at the insistence of the physicians of Arkansas, and physicians have continued to render valuable support to both local and state public health work. In those counties with far too few public health nurses, the help of physicians is particularly needed in interpreting the functions of public health nurses and the need for their services to the public.

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## RESOLUTION

### A MEMORIAM TO DR. O. K. JUDD

Dr. Judd died accidentally at his home. It was a great loss to the medical profession and to his many patients.

He came originally from Rantoul, Illinois. He graduated from the Arkansas School of Medicine in 1905 and supported himself during his studies by working as a linotype operator for the Arkansas Gazette. He later took postgraduate work at Johns Hopkins and at the Massachusetts General Hospital in Boston.

Dr. Judd served as Little Rock's City Health Officer from 1907 to 1914. He has been a member of the Pulaski County Medical Society since 1948 and was voted a life member of the Society in 1957.

He was always very active, even in his later years. He enjoyed life in the service of his fellow men. He was particularly interested in obstetrics and achieved a remarkable record in this field.

Since it was God's will that he be taken from us, be it therefore resolved: First, that we express our sorrow at his passing and extend our sympathy to his family and friends; Second, that a copy of this Memoriam be placed in the records of the Pulaski County Medical Society and that copies be sent to his family and to the Arkansas Medical Society for publication in the Journal.

Respectfully submitted,

M. D. Ogden  
H. N. Miller



## RESOLUTION

### IN MEMORY OF DR. RECTOR C. HOOPER

Tender memories fill our hearts as we think of the passing of this good doctor. It proves very definitely that man's life upon earth is as flowers of the field which bloometh in the morning and is cut down in the evening.

Dr. Hooper was just entering the threshold of a very useful and busy life. There is no good reason why we should dread death when we have lived out our normal term of years, or regard it as appalling when it befalls our fellow man. It is a reason for mourning when a useful and busy life is cut off prematurely. Dr. Hooper was only forty-six years of age.

Let us recount with pleasure the good things he did while with us, and rejoice at his undoubted triumphs over diseases and suffering and his contribution to scientific medicine.

We acknowledge with pleasure his services to organized medicine, and especially

his contributions for the good of this society, ever holding high the standards of professional service and medical ideals was a signal trait of our departed confrere. He faithfully continued his good work up to the end.

Dr. Hooper's passing not only offers us an opportunity to pay homage that should have been paid while he lived, but reminds and impresses us that death is no respecter of person, but is inevitable. The doctor with his experience at the death-bed knows even better than the layman the truth of this sad fact. Each of us have stood watch over our dying patients like Spartans true, fighting the battle for life, realizing at times that death was bringing its reinforcements to an advantage and forcing us to hope against the impossible.

CRAIGHEAD-POINSETT  
MEDICAL SOCIETY

## ANSWER—What is Your Diagnosis?

University of Arkansas Medical Center  
Department of Radiology

### Anatomy and Diagnosis

Abdomen Dermoid Cyst containing Lipoid Material

**CLINICAL DATA:** This patient is a 56 year old colored female who entered the clinic complaining of prolapse of uterus with cystocele and rectocele. Physical examination revealed a mass in the right upper abdomen which was movable and failed to show any direct attachment to the colon, kidney or ureter. The patient complained

of some pain in the region of the mass. An exploratory laparotomy was performed and a fatty cyst containing hair was found lying in the omentum which was adherent in the region of the right ovarian pedicle. It was felt that this cyst arose from the right ovary which had migrated and become adherent to the omentum.

### **PATHOLOGY:**

**X-RAY FEATURES:** There is a perfectly round, fat containing, radiolucent mass measuring 9 cm in diameter. A thin rim of calcification surrounds the mass. The right side of the colon is slightly displaced and draped around the mass.

## Report of Sixth National Conference on Physicians and Schools

JACK W. KENNEDY, M.D.\*

The 1957 National Conference on Physicians and Schools has been sponsored by the American Medical Association through its Bureau of Health Education for the past ten years. These conferences are held at Moraine-on-the-Lake, Highland Park, Illinois, in October or November every two years. There have been representatives to each conference from state and territorial medical associations, health departments, education departments, national health and educational agencies concerned with school health. Leaders in public health education and medicine from all parts of the nation have served as consultants.

A few months prior to the Sixth National Conference on Physicians and Schools the President of the United States called a conference to deal with the fitness of American youth. This matter was called to his attention by publicity given to a research based on certain alleged tests of physical fitness. The conference was held at the United States Naval Academy and was attended by approximately one hundred fifty invited participants, including physicians, athletes, coaches, educators, public health personnel and other interested groups. The Vice President of the United States presided at the conference and as recommended by the conference, the President created at cabinet level a Council on Youth Fitness with the Vice-President as chairman and with six cabinet members as officers, also an advisory committee composed of outstanding citizens and five physicians. Shane McCarthy, M. D., was appointed director.

Physicians and medical organizations all over the country, stimulated by the action of the President, are awakening to the fact that physical fitness in our youth is all important. Medicine stands for a broad concept of fitness for living. Despite publicity that American youth is soft and decadent, it has been proved that this is not true in all respects. Youth may be out of training but has the basic health

essentials for quick acquisition of the necessary military skills.

The Sixth National Conference on Physicians and Schools was on youth fitness and how it could best be achieved. I was privileged to attend this conference and get my eyes opened to some basic fundamental problems in developing the youth in the United States. Approximately 225 participated. The conference was divided in ten discussion groups for three days and on the fourth day the final analysis was reviewed at a conference banquet from summaries prepared by each group. Some of the interesting facts reported were: Group 1, Dr. Guy W. Magness, Chairman, "The Physician and Youth Fitness," reported that while it recommended the participation of all children in all types of sports under proper supervision in accordance with their growth and developmental capabilities, it felt that participation by pre-teen age children in athletic programs modeled after those suitable for adults was undesirable. It was agreed that a Health Committee was essential at both the local and state levels to adequately promote youth fitness.

Group 2, Delbert Oberteuffer, Ph.D., Chairman, "Community Coordination for Youth Fitness." This group defined community coordination as "The organization . . . providing the means for a group of people in an area to be united to solve problems. A youth fitness program is dependent on this coordination."

Group 3 discussed "Mental and Emotional Aspects of Fitness."

Group 4, "Dramatizing Basic Fitness Procedures;" Group 5, "Medical Guidance in Girl's Physical Recreation Activities;" Group 6, "Special Health Problems in Athletics;" Group 7, "Fitness of School Personnel;" Group 8, "Optimum Fitness for Youth with Special Health Problems." This group summarized their discussion by stating "close cooperation between school departments, physicians, parents,

\*1008 Pine Street, Arkadelphia, Arkansas.



## FEATURES

and health departments is necessary for optimum fitness to be achieved by all children but more particularly by children with special health problems. Group 9, "Accident Prevention and Youth Fitness," and Group 10, "Food Factors in Fitness."

Dana L. Farnsworth, M. D., Yale University, stated: "He was not thinking of fitness as an end in itself, but, instead, that all too rare state of body and mind in which one is free to make maximum use of his capacities in his daily living." This statement by Dr. Farnsworth summarized the conference discussions.

The underlying thoughts that were brought back from the conference was the part the physician should play in his home state and local community in promoting physical fitness by (1) helping organize a local committee on school health with active and intelligent participation in the committee by all physicians, (2) by organizing and participating in such a school health program by each county society. To promote such an activity locally, the Ohio Medical Society has created a committee on School Health as have some other state societies. Our society has no committee on school health at this time, but much of the work is done by the Committee on Maternal and Child Welfare. Members of the Society have for six years acted as a liaison with the State Health Department and State Education Department on matters of school health. No state conference on physicians and schools has been held.

Regardless of the deliberation of great men, the conferences, the resolutions, etc., the physical, social, emotional, spiritual aspects of our youth will not improve without expression and participation at state and local levels. The thought that has been carried through this report is . . . the medical profession is entitled to and obligated to occupy a central place in all movements toward health and fitness and this must be expressed largely in the county where projects, plans and children come together.

Fifth District Medical Society  
El Dorado, Ark.  
January 28, 1958

Senator J. W. Fulbright  
Senate Office Building  
Washington, D. C.

Dear Sir:

The Fifth District Medical Society in regular meeting at El Dorado, Arkansas, Thursday evening, January 16, 1958, desires to acquaint the members of Congress from Arkansas of the attitude of the doctors of this area of Arkansas on three important legislative matters and solicit their support.

First, we ask your support of the Jenkins-Keogh Bills (H. R. 9-10), which would permit self-employed persons (including all professional people like dentists, lawyers, architects and physicians) to set aside sums of money each year, tax free, to provide for their later retirement income. Thus, self-employed people would enjoy benefits already granted to corporations at the present time to create pension retirement trusts; and

Secondly, we definitely desire to continue to be excluded from Social Security; and

Thirdly, we urge you to strongly oppose the Forand Bill (H. R. 9467), which proposes that the Federal Government through the Social Security System, pay the costs of hospital, nursing home and surgical service for old people eligible for old age and survivors insurance benefits. This bill would give free socialized medicine to 12,000,000 to 13,000,000 people and would be the entering wedge for later socialized medical care for the entire population.

We would appreciate an answer stating your position on these three legislative matters so that the doctors may know your attitude.

Respectfully,

Paul G. Henley, M. D.  
Secretary

Fifth District Medical  
Society  
El Dorado, Arkansas

## ANNOUNCEMENTS

### **American Board of Obstetrics And Gynecology**

The next scheduled examinations (Part II), oral and clinical for all candidates eligible, will be conducted at the Edgewater Beach Hotel, Chicago, Ill., by the entire Board from May 7 through 17, 1958. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

### **Psychiatric Speakers Bureau**

"The General Practitioner Education Project, jointly sponsored by the American Psychiatric Association and the American Academy of General Practice, is interested in the development of post-graduate psychiatric education for the family physician. One of the services which is offered by the Project is a Speakers Bureau, which is prepared to offer names of psychiatrists who are willing to serve as guest lecturers while they are taking their vacation trips. Medical societies, hospitals, etc. which are interested in obtaining names of psychiatric speakers, please contact the G. P. Project, American Psychiatric Association, 1785 Massachusetts Avenue, N. W., Washington, D. C.

### **Meeting of Southwestern Society of Nuclear Medicine**

The third annual meeting of the Southwestern Society of Nuclear Medicine is scheduled to hold its next meeting in Dallas, Texas, Baker Hotel, on the week end of April 12 and 13, 1958.

### **Law-Medicine Lecture**

Western Reserve University's Law-Medicine Center has scheduled the fourth in a series of institutes for April 25-26 on the University campus.

Entitled "The Mind: A Law Medicine Problem," the two-day program will be held in the courtroom of the University's School of Law.

Prominent medical specialists will lecture on such topics as "Personality Growth and Development: Childhood, Adolescence, Adult;" "Causes of Mental Diseases and Illnesses; Physical and Emotional, Precipitating and Predisposing";

"Management of the Traumatically Disabled Mentally Ill;" "Classification of Mental Diseases and Illnesses;" "Psychological Testing and Interviewing;" "Law-Medicine Cases Involving Mental Diseases and Illnesses."

The primary purpose of the institute will be to indicate the effects of the trauma to the human body.

Cooperating with the Law School in presenting the program will be the Cuyahoga County Coroner's Office, cosponsor of the Law-Medicine Center.

### **Alumni Association Meeting**

The St. Louis City Hospital Alumni Association will hold its 70th Annual Meeting on Monday, April 14, at the Le Chateau Restaurant at 10405 Clayton Road — St. Louis County, Missouri. The Missouri State Medical Association will be meeting in St. Louis, Missouri, at the same time so the Alumnae of the hospital will be able to attend this Annual Dinner Party. Robert Koch is the President for this year.

## OBITUARIES

Dr. Robert Howard Huntington, 79, who has practiced medicine in Fayetteville since 1935, died January 28, 1958. Dr. Huntington was born in Okolona, Miss., and later moved to Eureka Springs. He had practiced medicine in Eureka Springs before moving to Fayetteville. Dr. Huntington attended school at the University of Mississippi, studied at Tulane University and received his medical degree at Emory University Medical School. He was a member of the Washington County and Arkansas Medical societies, the Southern Medical Association and the American Medical Association. He was a Shriner and Knight Templar, and belonged to the Fayetteville Rotary Club. He was a member of the Baptist Church. In addition to his wife, he is survived by two sons, Robert H. Huntington, Jr., of Portland, Ore., and Capt. Forrest Kay Huntington, who is with the Army in Germany; two daughters, Miss Mary Kathleen Huntington, a student at Johns Hopkins University, Washington, D. C., and Miss Lynn Huntington, a student at the Rochester, N. Y., University School of Nursing and three grandchildren.



## Medicine in the News

### Group Health Asks Tax Change

The lay-sponsored, prepayment medical and hospital care plans making up Group Health Federation of America are asking Congress to change the tax law so their status as gift recipients will be the same as hospitals. The appeal was made to the House Ways and Means Committee by Horace R. Hansen of St. Paul, Minn., on behalf of the federation. He complained that while hospitals generally have "first class exemption" as charitable institutions, and thus the assurance that gifts to them may be considered tax deductible by the donor, hospitals and clinics operated by group health organizations are denied this benefit. They are classified as "social welfare" and not as "charitable" organizations, and any potential donors of gifts to them cannot deduct the money for tax purposes.

### Nine VA Construction Projects Planned

In the next few months Veterans Administration plans to call for bids on nine hospital construction projects estimated to cost between \$16.9 million and \$23 million. Hospitals on the list for improvements or additions are those at Syracuse, Newington, Conn., Bronx, Ann Arbor, Bedford, Mass., Chillicothe, Ohio, and Roanoke, Va. The largest calls for additional buildings and utilities at the Downey, Ill., hospital.

### Calls for Probe of Insurance Rates in State

A special committee of the Arkansas Medical Society recently urged the state to investigate several health and accident insurance companies operating in the state. Dr. Sam Jameson of El Dorado is head of the group which talked with Gov. Orval Faubus. The committee told the governor it had uncovered several cases in which the public has been defrauded by the companies. The governor said he would ask Insurance Commissioner Harvey G. Combs to meet with the commit-

tee as the commissioner could best handle the investigation.

The following bulletin has been published by the Treasury Department with regard to the use of narcotics:

#### Narcotic "DON'TS" for the Physician

Don't leave prescription pads around—Addicts want them for effecting narcotic forgeries.

Don't write a narcotic prescription in lead pencil—Avoid writing any Rx in pencil, many are changed to call for morphine.

Don't write for narcotics this way: Morphine HT 1/2 No. X or Morphine HT 1/4 No. 10 — Several X's or zeros can be added to raise the amount. Use brackets or spelling.

Don't carry a large stock of narcotics in your bag—Addicts are on the lookout for these in doctor's offices and cars.

Don't store your office supply where patients can get at it—Avoid storage near sink or urinal. The patient may ask to use these.

Don't fall for a good story from a stranger claiming ailment that usually requires morphine—The addict can produce bloody sputum, simulate bad coughs or other symptoms. Make your own diagnosis.

Don't give a narcotic Rx to another without seeing the patient—Addicts have posed as nurses to get doctors to prescribe narcotics.

Don't write for large quantities of narcotics unless unavoidable—Diversion to addicts is a profitable business, as much as \$1 for 1/4 grain M. S.

Don't prescribe narcotics on the story that another MD had been doing it—Consult that physician or the hospital records whenever possible.

Don't leave Rx's signed in blank at the office for nurses to fill in—Signed blanks are bad practice and many have been stolen by addicts.

Don't treat an ambulatory case of addiction. Addicts must be under proper control—Addicts go to several Md's at a time. Notify this Bureau!

Don't leave your Medical Kit containing narcotics in your automobile while visiting a patient or hospital—Addicts watch Doctors leaving their office and

visiting patients and hospitals, to ascertain if they leave their medical kits in autos.

Don't dispense any narcotics without keeping a record of it—Bedside and office administration are permitted without record.

Don't buy your office narcotic needs on Rx blank—The law requires you to use an official order form.

Don't resent a pharmacist's call for information about an Rx you may have written—The pharmacist is held responsible for filling forgeries. Please cooperate.

Don't hesitate to call the U. S. Bureau of Narcotics, Treasury Department, to get or give information—It will be held strictly confidential.

## U.S.-Soviet Agreement Announced On Medical and Other Exchanges

The United States and Russia are going to exchange medical scientists this year, with each group delivering lectures and discussing experiences. This is one of the major points in a broadscale scientific, cultural and educational program worked out by the two countries. A joint communique hailed it as "a significant first step in the improvement of mutual understanding between the peoples of the United States and the Union of Soviet Socialist Republics" and expressed the hope that it would be carried out in such a way "as to contribute substantially to the betterment of relations between the two countries, thereby also contributing to a lessening of international tensions."

These medical programs have been worked out by the two countries: (1) The Soviet Ministry of Health to send in 1958 a team of 3 or 4 Soviet medical scientists for 2 or 3 weeks to deliver lectures and exchange experiences, and a similar team from this country to give lectures at the Institutes of the Academy of Medical Sciences and at medical institutes in Moscow, Leningrad and Kiev, (2) provision to be made for the Central Scientific Medical Library of the Soviet ministry to exchange medical journals with corresponding medical libraries here, and (3) Soviet health ministry to make available from 8 to 10 medical films for U. S.

presentation, and this country to make similar arrangements for Russian audiences.

## PHS Seeking Physicians

Opening a campaign to obtain more commissioned corps physicians, Public Health Service is stressing these points: (1) Doctors with military obligations can meet them by serving two years with PHS, (2) PHS officers receive the same pay, allowances and benefits as military service officers, and (3) most PHS assignments are in clinical medicine, with a limited number of openings in research, preventive medicine and public health. The PHS medical personnel problem was caused in part by ending of the special doctor draft and an easing in military requirements for physicians. When the prospect for many physicians was immediate military service on completion of internship, a large number chose service in PHS instead.

## Diamonds for Doctors

A good word for Arkansas was won at the recent convention of the American Medical Association, meeting at Philadelphia.

According to the Arkansas Publicity and Parks Commission, a Commission display installed by the Arkansas Medical Society, headed by Dr. R. B. Robins of Camden, received a lot of attention from doctors visiting from all over the United States.

Diamond Hunting Licenses, signed by Governor Faubus, were mailed to doctors who visited the Arkansas exhibit.

More than 100 letters acknowledging the licenses have come to Paul C. Schaefer, executive secretary of the Arkansas Medical Society.

After visiting the exhibit, one doctor wrote: "If you have all of these things in Arkansas, what am I doing in New England." A bachelor doctor promised to prospect for his diamond when he got engaged.

## AMA Offers Aid in Battling the 1040 Form

Write to the AMA Law Department for its new booklet — "The Federal Income Tax Guide for Physicians" — for



answers to some of your most perplexing tax problems. This timely new booklet has been compiled from court decisions as well as rulings, regulations and publications of the Internal Revenue Service. It has been designed to give physicians a better understanding of their rights and obligations under federal income tax laws. The Law Department staff has only one word of advice: Do not consider this booklet as a **substitute** for the services of a personal tax advisor! Incidentally, this material is also scheduled to appear in the

### **Journal of the A.M.A. Jenkins-Keogh Seen as Help In Physician Distribution**

The American Medical Association has raised the possibility that Jenkins-Keogh legislation could help solve the problem of maldistribution of physicians. The prospect was called to the attention of members of the House Ways and Means Committee which is holding tax hearings by Dr. F. J. L. Blasingame, general manager of the AMA. Bills provide tax deferment of money paid into annuity plans until retirement. Dr. Blasingame wrote:

"Unless something is done to make self-employment as financially attractive as the employee relationship, we believe there is a grave danger that many professional men will by-pass the private practice of their profession. The trend today is definitely toward becoming an employed person. This situation also contributes to a maldistribution of physicians, since it makes the large city more attractive to the young professional man by providing more opportunities for him to become employed.

"On the basis of our observations over many years, we are convinced that this is one of the factors contributing to the pronounced migration of professional people into urban areas. So, quite apart from the objective of obtaining tax equality with our employed counterparts, we urge you to approve legislation of this type because it is in the public interest."

### **AMA Plans Meeting on the Aged**

Problems of the aging and ways that the medical profession can assume leadership in helping to solve them are being discussed at a regional meeting of the

AMA's Committee on Aging March 29-30 in Birmingham, Ala. Representatives of the state medical associations of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee have been invited to attend the conference sponsored by the Council on Medical Service. This meeting will be similar to those held previously in Seattle, Dallas and Philadelphia. Proceedings of some of these earlier meetings have been published and are available on request from the Council.

### **AMA Presents New Radio Health Series**

To give your community a monthly report on the newest and best in medicine, the American Medical Association introduces its new radio transcription series—"Health Magazine of the Air." Based on current items from TODAY'S HEALTH magazine, the new 15-minute series features H. V. Kaltenborn, veteran newscaster and radio-TV commentator, and W. W. Bauer, M. D., AMA's Bureau of Health Education director. Seasonal health spot announcements—three 15-seconds; three 30-seconds, and two one-minutes—will be presented on the reverse side of the platters. These spots will be given by popular movie personalities who contribute their time as a public service.

### **Kerr Slated for Byrd's Finance Committee Chairmanship**

Senator Robert S. Kerr, Oklahoma Democrat, is slated to take over chairmanship of the powerful Senate Finance Committee next year as a result of Senator Byrd's decision not to seek reelection this year. Senator Kerr has been in the Senate since 1948, and is regarded as a liberal. He has been a strong critic of the Eisenhower administration's fiscal policies.

The Oklahoma Senator has been active in national Democratic politics for many years, and in 1944 was keynoter at the national convention. Senator Kerr, an overseas veteran of World War I and a former Oklahoma governor, made a fortune in oil before coming to the Senate.

The Senate Finance Committee is par-

ticularly important in medical legislation bills dealing with changes in the social security program or taxation. Another version of the Forand proposal, Senator Proxmire's, now is pending before this committee, but hearings have not been scheduled in either Senate or House. This committee also has before it a Senate Bill (S. 3194) to give tax relief to small businessmen and other self-employed, along the lines of the Jenkins-Keogh bill. This bill is sponsored by a majority of the Senate Small Business Committee.

### **Social Security A Tax, Not Insurance, Schottland Says**

Representatives of major national organizations dealing with health and welfare were reminded this week by the head of the Social Security Administration that social security, contrary to popular concept, is a tax rather than an insurance program in the usual sense. Charles Schottland, social security administrator, spoke at a meeting sponsored by a non-profit group, Social Legislation Information Service. Heads of various voluntary groups dealing in this field were here to get a briefing from Health, Education, and Welfare officials on their plans for the next year.

Commented Mr. Schottland in answer to a question: Congress, through its power of taxation, calls the signals on the amount of tax and the amount of benefits to be given persons covered under social security. The inference seemed to be that if any amendments are made this year, the initiative will not come from HEW.

Questioning from the audience disclosed an interest in possible lowering of the medical standards for determining disability under both the disability freeze and disability cash payments programs on the theory standards were too restrictive. The questions were interesting in light of SSA figures released during the conference on the number of denials for disability for failure to meet medical standards — 80 per cent of the 320,000 who had failed to win certification. At year's end, SSA had made final determination

on 690,000 of 1 million who had applied; 370,000 had been certified.

Other social security highlights: (1) About 11 million persons are now receiving monthly social security benefits; 65 per cent of all over 65 are now drawing old age and survivors benefits or will be able to draw them when their earnings decrease; by 1980, the proportion of aged population eligible for benefits will be 85 per cent, and by the year 2000, 94 percent. (2) The Disability Trust Fund from which come payments to disabled 50 or over had a year-end balance of \$640 million and mid-year, it will be slightly over \$1 billion. Note: Some present thought Disability Fund should be tapped for vocational rehabilitation programs in the states. (3) SSA had underestimated both the number of women who would retire at age 62 and self-employed farm operators who would come under the program as a result of the 1956 amendments, a development that put social security expenditures ahead of receipts earlier than anticipated.

### **DAV and VFW Explain Legislative Policies to Committee**

Prior to opening of hearings on specific legislation, the House Veterans Affairs Committee is taking testimony from representatives of veterans' associations on their general legislative objectives. Those heard so far include the Disabled American Veterans and Veterans of Foreign Wars.

Speaking for the VFW, Richard L. Roudebush, commander-in-chief, said there actually are "inadequacies" in the budget the President has asked for hospitalization and medical care for veterans, even though the total is somewhat higher than that for the current fiscal year. He said rising hospital care costs and a prospective pay increase for Veterans Administration medical personnel promise to wipe out the slight increase "and may actually result in a reduction of hospitalization and medical care." He also criticized the administration for dropping VA construction money in the budget from this year's \$43 million to \$9 million. To make more beds available for veterans "who actually require hospitalization,"



VFW proposes that outpatient treatment be provided for some non-service connected cases and that the average VA bed occupancy rate be increased to not less than 95 per cent.

National Commander Paul E. Frederick, Jr., testified for the Disabled American Veterans. He told the committee that DAV was asking improved benefits for only one group of veterans — those with service-connected conditions. For them it is recommending proper medical care, adequate compensation for disability, training or education to return them to gainful employment, and adequate compensation to veterans in this group who die as a result of service-incurred disability. He added: "We will not take legislative action on resolutions or proposed legislation which aims to provide benefits for veterans or their dependents" if the claim is based on non-service connected conditions. However, he said DAV would not oppose such legislation, "except when it is evident that it would jeopardize benefits for the wartime disabled . . ."

#### **Retail Druggists Testify on Behalf of Jenkins-Keogh Bill**

George H. Frates, Washington representative of the National Association of Retail Druggists, has urged passage of the Jenkins-Keogh bill to "correct a discrimination that has unfairly penalized those who work for themselves rather than for others." His testimony was given before the House Ways and Means Committee, which is considering changes in the tax laws. Jenkins-Keogh has had the strong support of the American Medical Association for many of the same reasons cited by Mr. Frates as the basis for druggists' support.

#### **Administration's VA Pay Increase Bill Advances in House**

Rep. Long's subcommittee of the House Veterans Affairs Committee has approved the administration's bill for pay increases to VA medical personnel and recommended to the full committee that it be substituted for a bill (H. R. 6719) approved by the full committee last year, but not acted on by the House. The bill

favored by the subcommittee does not place optometrists in the VA's medical service, as would last year's version of H. R. 6719. That provision last year became a point of controversy, although there was no opposition from the profession to other provisions of the bill.

#### **Committee formed to Advise PHS on Work in Radiation**

To advise Surgeon General Burney on Public Health Service programs dealing with radiation and radiation hazards, a special advisory committee has been formed. It is headed by Dr. Russell R. Morgan, professor of radiology at Johns Hopkins medical school and radiologist in chief of Johns Hopkins hospital, who since last August has been special consultant to PHS in these fields.

To continue its various activities in radiation, PHS is asking Congress for \$608,000 for the next fiscal year, a 50 per cent increase of this year's appropriations. Current PHS radiation programs include research, epidemiological studies, radiation monitoring of milk, water and air, and technical assistance to states.

#### **Food Additives**

Chairman John Bell Williams (D., Miss.) of the House Interstate subcommittee on health wants to prohibit the use of new food additives that have not been adequately pretested to establish safety. The bill is **H. R. 10404**. It defines a new food additive as "any substance . . . intended to be newly used in the manufacture, packing, processing, preparation, or other fabrication of any food and thus to become a component of such food, and which is not generally recognized by (qualified) experts as safe . . ." Such additives could not be used until the Secretary of HEW has had opportunity to evaluate the results of specific pretesting procedures. Evaluation would have to be completed within 120 days of submission of data, but this could be extended another 60 days by mutual agreement.

#### **Jenkins-Keogh**

Senator Sparkman (D., Ala.) and a majority of the Senate Small Business Committee have introduced a bill for tax relief of small independent businessmen and other self-employed which contains a

provision similar to the Jenkins-Keogh legislation now pending in the House Ways and Means Committee. **The number is S. 3194.**

The bill would permit any individual not covered by or receiving payments from an employer's pension or stock bonus plan to defer income tax payments on money placed in a retirement fund for himself or his beneficiaries. Annual payments would be limited to 10 per cent of income (maximum of \$1,000), except that an additional 1 per cent could be added for each year over 50. Retirement "credits" not used could be carried over for the next five years.

### **Russians Invited to Aero Medical Meeting**

Russian medical scientists have received a special invitation to attend and participate in the Aero Medical Association's meeting scheduled for March 24-26 in Washington. The meetings attract many foreign scientists, especially from Europe. The invitation to the Russians, sent to the Russian embassy by Dr. Ashton Graybiel of Pensacola, urges them "to present papers on their current work in space medicine."

### **House Subcommittee Inquiry Into Tranquilizer Advertising**

Four out of five witnesses, all physicians, have informed a House Government Operations subcommittee they don't believe pharmaceutical companies are misrepresenting tranquilizer drugs in literature or advertising. The subcommittee, headed by Rep. Blatnik (D., Minn.), first concerned itself last year with advertising and marketing of certain proprietary drugs. The inquiry has since been broadened to tranquilizers.

**Dr. William James Wright** was named winner of the Earle Junior Chamber of Commerce Distinguished Service Award. Dr. Wright was praised for his outstanding work with the youth of the city, especially his part in the baseball program.

The West Memphis Rotary Club has elected as its president **Dr. Gilbert D. Jay, III.** He is to take office July 1.

**Dr. James W. Headstream**, Little Rock, was a guest speaker at the Section Meeting of the American College of Surgeons held in Jackson, Mississippi, January 17 and 18. He participated in a panel on "Injury," and presented a paper, "Urologic Complications in Abdominal Surgery."

Mobley Clinic, Morrilton, has announced that **Dr. Jack E. Mobley**, who is a member of the clinic, is now a Certified Diplomate in Surgery.

Among doctors presenting papers at the February meeting of the Alabama Chapter of the American College of Surgeons in Point Clear, Ala., was **Dr. Henry Hollenberg**, Little Rock.

**Dr. Glenn M. Holmes** of Little Rock has replaced **Dr. Nils C. Pehrson** as medical director of the Community Health Clinic at Perryville. Dr. Pehrson is now in practice at Town Creek, Ala.

**Roy Millard** is the new president of the Chamber of Commerce at Russellville.

**Louis A. Whittaker**, Fort Smith, addressed the Fort Smith Educational Secretaries Organization on February 25. His topic was Medical Hypnosis.

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## *Proceedings of Societies*

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The Craighead-Poinsett Medical Society met February 5th at the Jonesboro Country Club. Dr. Joe A. Buchman, Little Rock, spoke on "Vascular Surgery".

The Lawrence County Medical Society met in February at the home of Dr. Ralph Joseph. Officers for the year were

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## **PERSONALS AND NEWS ITEMS**

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**Dr. James D. Grable**, who has operated at the Grable Clinic at Des Arc since 1953, has accepted a position as associate with the Dr. R. S. Smith Clinic at Portageville, Mo.



elected as follows: President, Dr. J. J. Whittington, III; Vice President, Dr. J. W. Case; Secretary, Dr. J. B. Elders; Delegate, Dr. E. J. Cruse; Alternate Delegate, Dr. Ralph Joseph.

New officers for the 5th District Medical Society were elected at a dinner meeting held in January at the Garrett Hotel in El Dorado. They were Dr. Evan G. Houston of Magnolia, president; Dr. James Hawley of Camden, vice president; and Dr. Paul Henley of El Dorado, secretary.

Dr. Hickman Callaway of Batesville was recently elected president of the Tri-County Medical Society composed of Stone, Izard and Independence Counties. Dr. Glen E. Keller of Mt. View was elected vice president.

Members of the Pulaski County Medical Society heard a discussion of public relations by a staff member of the American Medical Association at their February meeting. Stephen Donohue, Chicago, assistant director of the public relations department of the AMA, was featured at the scientific and business meeting.

The Ouachita County Medical Society met in regular dinner session Thursday night, February 6, at the Camden Hotel with Dr. J. W. Hawley as host at the social hour and Dr. Willard H. Pruitt as host for the dinner. The following program was rendered: "Psychiatry and General Practice," by Dr. W. O. Young of Little Rock; "Dermatology and General Practice," by Dr. Ray Fulmer of Little Rock.

### Contributors to the American Medical Foundation

During the month of January 1958, the following contributions to A.M.E.F. were received from Arkansas: Eugene Crawley, Little Rock, \$25; Milton D. Deneke, West Memphis, \$10; Hugh R. Edwards, Searcy, \$50; A. M. Grasse, Calico Rock, \$50; Edwin F. Gray, Little Rock, \$100; Dr. C. L. Hyatt, Monticello, \$25; Dr. A. R. Sparks, Little Rock, \$10; total \$270.

## Random Thoughts of the Secretary

By W. R. BROOKSHER

January 19th. In gracious (sic!) action, the Council brings this past-president from exile into activity, a feat which Fount Richardson has not been able to accomplish, but which draws the uncomplimentary reference from Whittaker that the "moth-ball fleet" has been reactivated.

January 22nd. Airborne this day but forced to detour via Long's field at Ozark as a landmark and thence along the friendly Arkansas river as directional marking to the home field.

January 24th. Varying the routine of landing at DeQueen, journeying to Dickinson's Horatio airfield, occupied in its most important segment by cows who show no disposition to evacuate, despite which landing is accomplished. This is the most unusual airfield in our experience, located at the back steps of the Methodist church, possibly for the convenience of the parishioners when Gabriel blows the trumpet.

January 25th. Entering the better half in St. Vincent's, where courtesy and kindness are most evident. Later to Kahn manor, an experience in gracious living where the delights of mountain residence are combined with vistas of near-jungle, of the stately Arkansas river and of occasional lonely Rock Island trains; an evening of enjoyment with the Kahns and the Thomas Johnstons, the latter a Kappa Sig brother, but most irreverent in his alumni attitude.

January 31st. A vicious west wind adds more than zest to normal routine landings at Mena Airport with low ceilings restricting further travel, and thanks to Kelly-Koetts' Bradley who returns us home at a safe motoring speed not in excess of eighty.

February 5th. Again stymied by the vagaries of winter air travel and completing only the Clarksville sector of our regular Wednesday tour.

February 7th. Without effort or event making today's complete trip to Mena and DeQueen, enlivening the day for our colleagues by distribution of the leaflet which deals with the hazards of operating rotary lawn mowers.

## Woman's Auxiliary

Local committees of Garland County Medical Auxiliary for the thirty-fourth annual session of the Woman's Auxiliary to the Arkansas Medical Society have been announced as follows: General Chairman, Mrs. John Dodson; Co-Chairman, Mrs. H. King Wade, Jr.; Registration, Mrs. W. K. Clardy and Mrs. J. W. Leatherman; Pages, Mrs. C. W. Parkerson to Mrs. Jack Kennedy; Mrs. H. King Wade, Sr., to Mrs. Paul Craig, President of the Woman's Auxiliary to the American Medical Association; Publicity, Mrs. Lon Reed; Transportation, Mrs. Walter G. Klugh; Entertainment: Mrs. Haynes G. Jackson, who is in charge of arrangements for the luncheon Monday, May 5, and Mrs. Gaston A. Hebert, who is in charge of the luncheon Tuesday, May 6; Hospitality Chairman, Mrs. W. R. Lee; Chairman of the Fashion Show Monday afternoon, May 5, Mrs. Robert F. McCrary; and Flower Chairman, Mrs. Robert H. Atkinson.

Headquarters for the meeting are the Arlington Hotel in Hot Springs, and the dates are May 5 and 6. For further details about the state meeting watch for the next issue of the Ark-MAP. It will be a pre-convention issue, and will include the complete program and further information.

### Around the State by Counties:

**Boone:** Mental Health — The Community Way, Life in the Home, and Individual Health, was the program topic of Boone County Medical Auxiliary in Harrison for its February meeting. The program was presented by Mrs. Ross Fowler, state chairman of Mental Health. In January Boone County Auxiliary heard a talk on Rural Health, presented by Mrs. Wayne P. Jones of Berryville.

**Garland:** Mrs. Robert Atkinson, Mrs. Myron Lecklitner, and Mrs. Louis McFarland were hostesses for the January meeting of Garland County Medical Auxiliary in Hot Springs. Guest speaker was Dr. Howell Brewer, director of the Physical Medicine Center of Hot Springs.

**Jefferson:** The January meeting of the Jefferson County Auxiliary was a coffee party in the home of Mrs. J. Clyde Hart, Jr., Pine Bluff. A program on "Medical Legislation" was presented by Mrs. Louis K. Hundley. Mrs. Gordon Oates was an honored guest and gave an informal talk to the group.

**Pulaski:** Sister Margaret Vincent of St. Vincent Infirmary, Little Rock, gave a review of "The Nun's Story" at the January luncheon meeting of the Pulaski County Medical Auxiliary.

**Sebastian:** Gerald Fisher of the State Vocational Rehabilitation staff spoke to members of Sebastian County Medical Auxiliary in February. The meeting was a luncheon at the home of Mrs. Davis W. Goldstein of Fort Smith. Mr. Fisher's subject was "Mental Health."

**White:** The Woman's Auxiliary to the White County Medical Society was formed at a January luncheon meeting at the home of Mrs. Porter Rodgers, Searcy. The officers elected for the Auxiliary are Mrs. Porter Rodgers, president; Mrs. S. J. Allbright, vice president and Mrs. M. C. Hawkins, Jr., secretary-treasurer. Mrs. Jack Kennedy and Mrs. Gordon T. Oates were guests at the luncheon.

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## BOOK REVIEWS

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**The Chemistry and Biology of Purines:** Edited by G. E. W. Wolstenholme, O.B.E., M.A.A., B. Ch. and Cecilia M. O'Connor, B. Sc., Ciba Foundation, London; Illustrated, Pp. 327, 1957, \$9.00, Little Brown and Co., Boston, Mass.

The publication of Ciba Foundation's Symposia has been of material benefit to the basic sciences of medicine. This particular volume records the discussions on purines and makes available everywhere, the material compiled and discussed in the meetings. Physiological chemists will find this volume a valuable reference.—FR

**Health Yearbook.** Oliver E. Byrd, M.D. Stanford University Press. Stanford, California. Pp. 250. May 28, 1957. \$5.00.

The Health Yearbook is a compilation of information concerning the general problems of health. It consists of brief summaries of pertinent articles on such diverse health topics as safety, sight, hearing, speech, habit forming substances, etc. Al-



though this book is well edited, it has too limited an appeal for most physicians.—AK

**Science Looks at Smoking:** Eric Northrup, Feature Editor, Scope Weekly. Introduction by Harry S. N. Greene, Chairman, Department of Pathology, Yale University. Pp. 190. 1957. \$3.00. Coward-McCann, Inc., New York.

A clever writer and medical news reporter has entered the lists in the tournament now being waged about the smoking habit. He sums up considerably the pros and cons, reviews and closes with the agnostic "don't know". The reader feels much as the young man in the Rubaiyat:

"And heard great argument  
About this and about  
And evermore came out  
By the same door wherein I went"

—FR

## TUBERCULOSIS ABSTRACTS

Sponsored by

The Arkansas Tuberculosis Association

### Protective Isolation of the Tuberculous

*Conference Report, Public Health Reports, September, 1957.*

Compulsory isolation of the tuberculous patient was considered at a Conference on Protective Isolation of the Tuberculous, held at Denver, Colo., January 22-23, 1957. The recalcitrant tuberculous patient and methods of dealing with him have been subjects of increasing concern recently. Attending the meeting were interested persons from many fields including officials from state and national agencies, tuberculosis control officers, tuberculosis hospital directors, private practitioners, psychiatrists, sociologists, social workers, lawyers, nurses, and health educators.

#### Arguments Pro

The case for compulsory hospitalization was led by Dr. Edward Kupka, Chief, Tuberculosis Control, California State Department of Public Health. These arguments were offered:

1. Tuberculosis is a communicable disease spread from person to person. Its spread can be prevented by the identification and isolation of all grossly infectious persons.
2. The civil liberties of a citizen do not include the right to endanger the health and welfare of other citizens.

3. Compulsory isolation serves as a deterrent to other individuals with tuberculosis who might otherwise fail to cooperate.

4. The truly recalcitrant patient is both physically and mentally ill and at times needs the support of official action to help take necessary precautions against infecting others. Commitment on psychiatric grounds is indicated for some of these patients.

5. The really recalcitrant patient is probably more dangerous to the public health than is the nonrecalcitrant known case. As the number of infectious tuberculous patients decreases, each recalcitrant becomes relatively more important.

6. There is a small hard core of socially irresponsible persons who, in spite of a concerted psychosocial attack, will expose their fellow men to infection unless restrained.

7. Basically democratic administration of isolation laws, like all laws, is a fair general assumption in the United States today.

8. Alternatives consist mainly in preventive measures which are too costly to be practical.

9. The program has worked well in those States with both a good overall tuberculosis control program and good facilities for compulsory isolation.

#### Arguments Con

Dr. Sidney Dressler, medical director, National Jewish Hospital, Denver, led the case against compulsory hospitalization. His team set forth the following arguments:

1. Recalcitrance is not a crime and may reflect psychosocial disease in the patient or the failure of the professional staff to deal with this disorder, or both. Some of these problems result from improper handling by health officials.

2. Recalcitrance is usually preventable by proper medical, social, and psychiatric care.

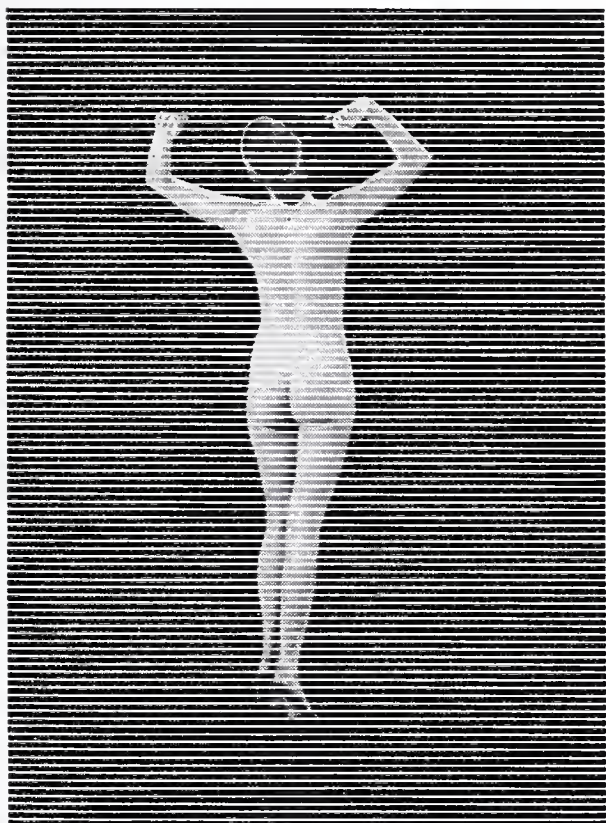
3. Recalcitrants represent such a small fraction of the potential source of infection that the expenditure of time, effort, and money necessary for isolating them is not justified.

4. Enforced isolation as a rule does not make recalcitrant patients cooperative

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SEARLE



## FEATURES

and, in fact, may drive tuberculosis underground and tend to create more recalcitrants.

5. There are adequate alternatives to enforced isolation.

6. Tuberculosis is only mildly contagious.

7. There is no evidence to show that compulsory isolation has succeeded in preventing additional cases or that incarceration has favorably influenced the infection rates in a community.

8. Since many of the patients who would be prosecuted are unable to defend themselves, such laws could easily lead to abuse by authorities. Civil liberties may be unnecessarily lost or curtailed.

9. Tuberculosis control officials have ample tools for protecting the environment from the recalcitrant. The unknown tuberculosis cases are the main hazard. The institution of forcible hospitalization would add no more to tuberculosis control than would more vigorous application of those methods now in use.

# The JOURNAL

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### Raynaud's Disease

#### *Diagnosis, Prognosis and Management\**

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Unfortunately the name "Raynaud's disease" even today strikes terror in lay circles where it is equated to gangrene and amputation. A variety of conditions have been called "Raynaud's disease" which on close scrutiny and in the light of later knowledge bear little or no resemblance to Raynaud's original description (1). The mistaken impression due to the early confusion in terminology persists even today.

The situation was not clarified until Allen and Brown (2, 3) carefully reviewed the literature on the subject in 1932 and clearly defined Raynaud's phenomenon as a symptom of many diseases of which true or primary Raynaud's disease is but one.

#### DEFINITION OF TERMS

Because of the great confusion still present in some minds concerning Raynaud's disease, it is important to define the terms first. The distinction between Raynaud's disease which is a distinct clinical entity and Raynaud's phenomenon which is a symptom must be made before treatment is begun.

#### RAYNAUD'S PHENOMENON

Raynaud's phenomenon is manifested clinically by intermittent changes in color of the skin of the fingers or toes and more rarely of the ears, nose, and lips. It is the result of intermittent episodes of

constriction in the small arteries or arterioles in the extremities. The skin becomes white when the affected arteries and arterioles are completely occluded and cyanotic when the spasm produces only incomplete occlusion of the affected vessels. A period of reactive hyperemia during which the skin becomes excessively red and warm may follow the episodes of vasospasm. The various color changes mentioned are referred to as the pallor phase, the cyanotic phase and the rubor phase of Raynaud's phenomenon. Some patients with Raynaud's phenomenon may exhibit all three phases, others may exhibit only the cyanotic phase, or only the pallor phase. The phase of reactive hyperemia or rubor is inconstant, and when it does occur, it follows the episodes of vasospasm. The duration of each phase may be a few seconds to a few minutes in most cases.

#### RAYNAUD'S DISEASE

When Raynaud's phenomenon exists in the absence of diseases or conditions to which it may be secondary, it is called "Raynaud's disease."

#### PATHOPHYSIOLOGY

At present, knowledge of the pathophysiology of Raynaud's phenomenon is incomplete. Most workers agree that the intermittent episodes result from spasm of small arteries and arterioles but do not agree as to whether this predilection to spasm is due to an inherent irritability in the walls of the involved vessel or to hy-

\*Read at the meeting of the Arkansas Medical Society, Arkansas Academy of General Practice, Little Rock, Arkansas, October 16, 1957.

†The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.



perexcitability of the sympathetic nervous system. Evidence indicates that digital arteries are not occluded by an organic lesion in true Raynaud's disease, but may be in Raynaud's phenomenon secondary to other conditions. In true Raynaud's disease larger arteries, such as the brachial and its branches, and the popliteal and its branches, are always open.

#### DIAGNOSTIC ASPECTS

Before the diagnosis of Raynaud's disease is made the presence of Raynaud's phenomenon must be established. A carefully taken history usually suffices for this, but if further evidence is required, the patient can be given an ice cube or other cold object to hold. This frequently will precipitate a vasospastic episode in the patient who really has Raynaud's phenomenon.

Next the various causes for Raynaud's phenomenon must be ruled out before a diagnosis of Raynaud's disease can be made. It is necessary to look for: (1) occlusive arterial disease, such as arteriosclerosis obliterans and thromboangiitis obliterans (Buerger's disease); (2) systemic diseases, such as scleroderma, disseminated lupus erythematosus, periarteritis nodosa and rheumatoid arthritis; (3) abnormalities of blood, such as cryoglobulins and cold agglutinins; (4) intoxication from lead, arsenic or ergot; (5) neurogenic lesions, such as diseases of the nervous system and thoracic outlet compression; (6) results of occupational trauma which may appear as Raynaud's phenomenon in typists and pianists, occupational occlusive arterial disease of hand and pneumatic-hammer disease; and late result of cold injury, such as trench foot, immersion foot and frostbite.

Raynaud's phenomenon is sometimes the presenting manifestation or symptom of these conditions, and only a detailed history, careful physical examination, and indicated laboratory data will reveal the underlying cause for it. At times the primary disease may escape detection for several months during which Raynaud's phenomenon is the only symptom. Many potentially serious conditions some of which might result in loss of limb or life may cause Raynaud's phenomenon.

The five criteria for a diagnosis of true

Raynaud's disease as set forth by Allen and Brown (2, 3) are (1) Raynaud's phenomenon excited by cold or emotion; (2) bilateral Raynaud's phenomenon; (3) ischemic lesions, when present, limited to small areas of cutaneous gangrene; (4) exclusion of the diseases just listed that might be causal; and (5) symptoms for at least 2 years. Experience has shown that the diagnosis of Raynaud's disease will be accurate in 95 per cent of cases (4) when these criteria have been adhered to.

#### AGE, SEX AND FAMILIAL INCIDENCE

Raynaud's disease occurs primarily in young women. At the Mayo Clinic 77 per cent of patients with Raynaud's disease are women, and of these women, 78 per cent are less than 40 years of age at the time of onset of their disease (4, 5). Approximately 5 per cent of women with Raynaud's disease will have a family history of Raynaud's phenomenon.

#### PRECIPITATING FACTORS

Exposure to cold is the usual stimulus for precipitating Raynaud's phenomenon in the majority of cases, and situations of emotional stress, even though the environmental temperature is warm, will precipitate it in approximately 20 per cent of cases.

#### SITE OF RAYNAUD'S PHENOMENON

Vasospastic phenomenon is first noticed in the fingers by most patients who have Raynaud's disease. Approximately 40 per cent will have symptoms in their toes also. It is unusual for symptoms to appear first in the toes, and even more unusual for symptoms to remain confined to the toes in true Raynaud's disease. Occasionally the vasospastic phenomena of true Raynaud's disease may be unilateral for several years before they become bilateral. For the most part, however, the presence of unilateral Raynaud's phenomenon is suggestive of some local cause, such as occlusive arterial disease, thoracic outlet syndromes, or chronic occupational trauma with occlusion of the palmar arterial arch.

#### ASSOCIATED CONDITIONS

Approximately 10 per cent of women with Raynaud's disease have hyperten-

sion (with blood pressure of more than 150 mm. of mercury systolic and 90 mm. diastolic), and approximately 15 per cent have migraine headache. The frequency of functional complaints among women with Raynaud's disease has led Mufson (6) to postulate that in some cases at least psychosomatic factors play a prominent role.

#### PHYSICAL EXAMINATION

In the search for diseases or conditions which might be responsible for Raynaud's phenomenon complete physical examination is essential. Between vasospastic episodes the extremities of patients with uncomplicated Raynaud's disease usually appear normal although coolness and excessive perspiration may occur at times in the hands, or feet or both. Arterial pulsations are palpable at the wrist and in the feet, although an unusually warm environment occasionally is necessary to make them evident. The demonstration of occlusion of major arteries makes it unlikely that a patient with Raynaud's phenomenon has true Raynaud's disease.

#### SPECIAL METHODS OF INVESTIGATION

Arteriography is sometimes helpful in ruling out occlusive arterial disease as a cause for the Raynaud's phenomenon, but skin temperature studies, oscillometry, and plethysmography make little contribution to the diagnosis of Raynaud's disease.

#### COMPLICATIONS OF RAYNAUD'S DISEASE

The complications of Raynaud's disease are trophic changes, sclerodactylia, and calcinosis cutis. They may appear separately or together.

Trophic changes occur in the tips of digits and around the nails and include chronic fissures, ulcers, superficial infarcts in the skin, and chronic paronychia. These lesions may heal leaving pitted scars. Extensive gangrene does not occur as a complication of Raynaud's disease. Hines and I (4) found that 8 per cent of 474 women with Raynaud's disease had had trophic changes at or before their first visit to the Mayo Clinic.

As a complication of Raynaud's disease sclerodactylia, which consists of sclerodermatous changes confined to the skin of the fingers, never involves more proximal parts and, therefore, can be distinguished

from the more extensive involvement seen in diffuse scleroderma and acrosclerosis. It was present in 7 per cent of the group studied by Hines and me (4) before or at their first visit to the clinic.

Both trophic changes and sclerodactylia were present in an additional 5 per cent of these 474 women with Raynaud's disease. Calcinosis cutis was found in 0.2 per cent of the 474 cases studied by Hines and me (4). It appears as tiny globular deposits which may ulcerate and discharge their contents.

The incidence of these complications then is not great, occurring in less than 30 per cent of patients followed over a period of years. Furthermore the disability arising from the complications is often minimal. The complications led to amputations for only two (0.4 per cent) of the 474 women before or at the first visit to the Mayo Clinic for Raynaud's disease. Only one or more phalanges were removed for painful and nonhealing ulcers. No major amputations were necessary in the group.

#### PROGNOSIS

The prognosis for patients with true Raynaud's disease is surprisingly good. Follow-up studies were made by Hines and me (4) on 307 women from 3 to 46 years (average 17 years) after onset of symptoms of Raynaud's disease. None of these women had undergone sympathectomy. Most of them were carefully instructed about protection of their hands from cold and trauma, but otherwise treatment was not standardized, and most patients had not followed any particular therapeutic regimen for prolonged periods.

Raynaud's phenomenon had disappeared during the follow-up period in 10 per cent of these, had improved in 36 per cent, was worse at the time of follow-up in only 16 per cent and was unchanged in severity in the remainder. Cigarette smoking did not appear to have had any effect, adverse or otherwise, on the course of Raynaud's phenomenon in these women.

Our studies revealed too that the complications of Raynaud's disease frequently became less troublesome or disappeared entirely. Of the women who had had trophic changes of their digits initially, 87



per cent had no further ulcerations, and of those who had had sclerodactylia initially, 70 per cent reported that it was less noticeable or was causing no disability.

Of women who were free of the complications of Raynaud's disease when the diagnosis was first made only 8 per cent subsequently had trophic changes, sclerodactylia or calcinosis cutis, either singly or in various combinations.

No amputations were necessary for the complications of Raynaud's disease during the period of follow-up.

None of the 12 deaths among the 307 women in this group during the follow-up period could be attributed to Raynaud's disease or its complications. Indeed, Raynaud's disease seems compatible with a normal life span. The same cannot be said for secondary Raynaud's phenomenon because it may be a symptom of serious and lethal diseases. This is shown by the 98 women with secondary Raynaud's phenomenon who were traced for a similar follow-up period. Thirty-eight per cent died (4). The average age of these women was 47 years at time of death, and 40 per cent were less than 40 years of age.

#### TREATMENT

As said before the first step in treatment is the diagnosis of Raynaud's disease. When the physician has ascertained that his patient has true Raynaud's disease and not Raynaud's phenomenon he then can proceed with treatment.

He should discuss methods of protecting the hands and feet from cold and mechanical trauma with the patient, for protection is essential. The patient should be warned not to handle cold objects without gloves; gloves should be worn even when handling items in the refrigerator or freezer. Patients with Raynaud's disease should wear suitable clothing to keep the body as well as the extremities warm when out of doors. The patient should be warned too against prolonged immersion of the hands in water as in washing dishes, for that can be harmful, especially when irritating soaps or detergents are employed.

When vasospastic episodes are frequent, vasodilating drugs such as tolazoline

(priscoline) and dibenzylamine, or ganglion blocking drugs, such as hexamethonium or mecamlamine (inversine), are sometimes helpful. In mild cases such medication is not really needed, and the side effects of these drugs may be more troublesome than the Raynaud's disease itself. In some cases an ointment which contains 2 per cent glyceryl trinitrate applied locally to the involved extremities has proved helpful.

For those patients whose Raynaud's disease is severe and progressive in spite of adequate medical management, surgical sympathectomy is available. It is necessary for less than 20 per cent of patients with Raynaud's disease in our experience at the Mayo Clinic and should not be used in mild cases.

A follow-up study of 70 women with Raynaud's disease who had various types of operations to interrupt the sympathetic nervous pathways prior to 1945 was made by Hines, Craig and me (7). Twelve years was the average period of follow-up after operation, and in one case it was 28 years. Two patients had operations for the lower extremities only, 52, for the upper extremities only, and 16, for both the upper and lower extremities. Of the 68 operations for the upper extremities 10 per cent gave excellent results, 44 per cent good, 9 per cent fair and 37 per cent poor results. Of the 18 operations for the lower extremity, 83 per cent gave excellent results, 11 per cent good and 6 per cent poor results at time of follow-up.

Sympathectomy for the lower extremities gives better results than sympathectomy for the upper extremities. Sympathectomy for the upper extremities often produces good or excellent initial results, but in a few months relapse may occur. The preganglionic thoracic sympathectomy described independently by Smithwick (8) and Telford (9), and the postganglionic cervicothoracic sympathectomy described by Adson (10) produced similar results in the group studied recently by Hines, Craig and me (7). There was no operative mortality. None of these patients had only second thoracic ganglionectomy and none had the more extensive procedures advocated recently by Ray (11).

In evaluating the results of sympathectomy for Raynaud's disease in the upper extremities, it should be remembered that most of the patients had failed to respond to medical treatment before surgical treatment was undertaken and the results, although not as good as in the lower extremities, were considerably better than those from conservative measures in these patients.

Follow-up studies were conducted also on a group of 54 women who had sympathectomy for Raynaud's phenomenon secondary to atherosclerosis, rheumatoid arthritis, occlusive arterial disease, periarteritis nodosa, and other diseases. The results were much worse than in the group with Raynaud's disease. In this series only 20 per cent of women obtained good or excellent benefit from sympathectomy for the upper extremities, and only 50 per cent obtained good or excellent benefit from sympathectomy for the lower extremities. This is another reason why it is so important to differentiate between true Raynaud's disease and secondary Raynaud's phenomenon. An important aspect of treatment is reassurance of the patient to allay apprehension that arises from misinformation about the nature and prognosis of Raynaud's disease. The patient should be told that major amputation is never necessary for Raynaud's disease and that minor amputations are rarely required.

#### SUMMARY

Raynaud's phenomenon is a symptom; Raynaud's disease is a disease entity. Whereas Raynaud's phenomenon is always present in Raynaud's disease, Raynaud's phenomenon can occur without Raynaud's disease. Raynaud's phenomenon results from intermittent spasm of small arteries and arterioles, usually in the fingers, less often in the toes. Since it can be associated with and secondary to many unrelated diseases and conditions, some of which are serious and even fatal, the prognosis is therefore uncertain until a diag-

nosis of primary or true Raynaud's disease can be substantiated by ruling out other causes for Raynaud's phenomenon. Raynaud's disease is a benign condition; no mortality is associated with it, and serious disability infrequently results. It does not lead to extensive gangrene, and major amputations are never necessary. Of the many conditions with which Raynaud's phenomenon may be associated Raynaud's disease is the most common but least serious.

Treatment for most patients can be conservative but surgical sympathectomy is indicated for resistant and recalcitrant Raynaud's disease.

#### References

1. Raynaud, Maurice: On Local Asphyxia and Symmetrical Gangrene of the Extremities. (Translated by Thomas Barlow.) In: Selected Monographs. London, The New Sydenham Society, 1888, p. 99.
2. Allen, E. V. and Brown, G. E.: Raynaud's Disease: Critical Review of Minimal Requisites for Diagnosis. *Am. J. M. Sc.* 183:187-200 (Feb.) 1932.
3. Allen, E. V. and Brown, G. E.: Raynaud's Disease Affecting Men. *Ann. Int. Med.* 5:1384-1386 (May) 1932.
4. Gifford, R. W., Jr., and Hines, E. A., Jr.: Raynaud's Disease Among Women and Girls. *Circulation.* 16:1012-1021 (Dec.) 1957.
5. Hines, E. A., Jr., and Christensen, N. A.: Raynaud's Disease Among Men. *J.A.M.A.* 129:1-4 (Sept. 1) 1945.
6. Mufson, I.: Mechanism and Treatment of Raynaud's Disease: Psychosomatic Disturbance. *Ann. Int. Med.* 20:228-238 (Feb.) 1944.
7. Gifford, R. W., Jr., Hines, E. A., Jr., and Craig, W. McK.: Sympathectomy for Raynaud's Phenomenon: Follow-up Study of 70 Women With Raynaud's Disease and 54 Women With Secondary Raynaud's Phenomenon. *Circulation.* 17:5-13 (Jan.) 1958.
8. Smithwick, R. H.: Modified Dorsal Sympathectomy for Vascular Spasm (Raynaud's Disease) of Upper Extremity: Preliminary Report. *Ann. Surg.* 104:339-350 (Sept.) 1936.
9. Telford, E. D.: Technique of Sympathectomy. *Brit. J. Surg.* 23:448-450 (Oct.) 1935.
10. Adson, A. W.: Changes in Technique of Cervicothoracic Ganglionectomy and Trunk Resection. *Am. J. Surg.* 23:287-288 (Feb.) 1934.
11. Ray, B. S.: Sympathectomy of Upper Extremity: Evaluation of Surgical Methods. *J. Neurosurg.* 10:624-633 (Nov.) 1953.



# Blood Salicylate Levels Obtained With A New Enteric Coated Aspirin And With Uncoated Aspirin

*A Comparative Study by*  
E. K. CLARDY, M.D., AND CLAY A. SLOAN, M.D.\*

Physicians who prescribe large doses of salicylates for diseases such as rheumatoid arthritis are often confronted with reports of side effects that prohibit the continuance of these drugs. Because of this, salicylates have been specially coated to eliminate these disturbing effects. Many of these preparations have not, however, been as effective as originally expected.

The chief complaint that has been aimed at these preparations centers around the absorption of the drug. It is believed that the coatings affect absorption in such a way that an overall drop in the blood salicylate level takes place, particularly at night. This overnight decrease in blood salicylate levels carries with it the threat of an increase in the so-called "morning-stiffness" experienced by many arthritic patients.

Recently, another coated aspirin preparation\*\* has become available. Since the results of laboratory and clinical investigations (1, 2, 3) indicate that the acid polymer coating of this preparation may be the most ideal yet developed, the following study was undertaken to compare the blood salicylate levels produced by this new preparation with those produced by uncoated aspirin. It was felt that such data were needed to substantiate the observations of the previous investigators, and to determine whether the special coating of this preparation affected the absorption of the medication.

## METHOD

Ten hospitalized patients suffering from rheumatoid arthritis were chosen for this evaluation. They ranged in age from 14 to 64 years (average, 38 years). Five were male; and 5, female. Each patient received coated aspirin and uncoated aspirin, separately, for periods of one week

each. The dosage was 15 grains four times a day (q.i.d.) for all patients, regardless of the drug being tested.

During each 7-day regimen, blood salicylate levels were determined by the Brodie method (4) during the last 5 days. The evening blood salicylate levels were determined on all 5 days; the morning levels were determined on the last 3 days. In each case blood was taken by venipuncture just prior to the next administration of medication and the salicylate determinations were made as soon as possible thereafter.

## RESULTS

The average evening blood salicylate levels following the administration of coated aspirin and uncoated aspirin were essentially the same; 21.28 mg. per cent for coated aspirin, 20.66 mg. per cent for uncoated aspirin. The average morning blood salicylate level for the patients receiving coated aspirin was, however, considerably higher than that for patients receiving uncoated aspirin. The patients receiving coated aspirin had an average morning blood salicylate level of 24.75 mg. per cent; those receiving uncoated aspirin, an average value of 17.43 mg. per cent (Fig. 1).

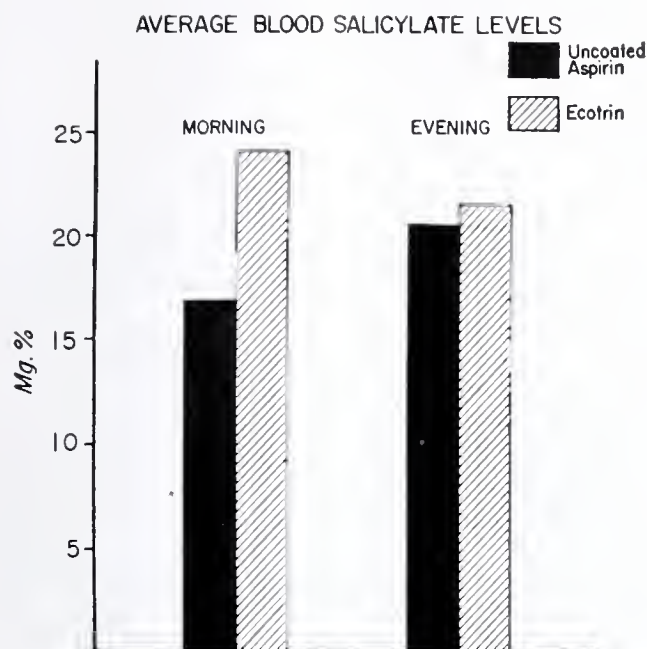
The average morning blood salicylate level following the administration of coated aspirin was significantly higher ( $P < .01$ ) than the level following the use of uncoated aspirin.

Based on the reductions of side effects and more effective management of pain, particularly morning-stiffness, 7 patients preferred coated aspirin, 1 preferred uncoated aspirin, and 2 had no preference. Six of the patients noted an improvement in their morning-stiffness when treated with coated aspirin, and 2 who had encountered gastric distress when treated with uncoated aspirin noted that these effects were absent when they were treated with coated aspirin.

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## BLOOD SALICYLATE LEVELS WITH COATED AND UNCOATED ASPIRIN



### DISCUSSION

The definite superiority of the morning blood salicylate levels achieved with coated aspirin over those achieved with uncoated aspirin was the most significant finding of this evaluation. It may explain, of course, the improvement in the morning-stiffness noted by 6 of the patients — and is probably correlated with the decreased rate of passage of the tablets through the relatively quiescent nighttime intestine. Because of this, there ap-

pears to be a distinct advantage in giving coated aspirin, especially at bedtime.

Furthermore, it counters the statement found occasionally in the literature that the use of coated salicylates is invariably followed by a drop in the blood salicylate level (5).

Important, too, for many patients who regularly take high doses of aspirin is the absence of gastric distress following the administration of coated aspirin. Patients who have been unable to take uncoated aspirin because of such distress are able to take high doses of this preparation without unpleasant side-effects.

### References

1. Sprecher, Armand G.: A new enteric-coated aspirin in the treatment of arthritis. *Am. Practitioner & Digest of Treat.* 7 (11):1801-1804 Nov., 1956.
2. Introcaso, A. A.: Clinical use of an acid polymer coated aspirin. *Clinical Medicine.* 4 (7), July, 1957.
3. Tice, R. D., and Tice, W. R.: An evaluation of a new differentially soluble aspirin. *Pennsylvania Med. J.* 60:752-753, June, 1957.
4. Brodie, B. B., Udenfriend, S., and Coburn, A. F.: The determination of salicylic acid in plasma. *J. Pharmacol. & Exper. Therap.* 80:114-117, January, 1944.
5. Editorial. Salicylates in the treatment of rheumatoid arthritis. *Southern Medical Journal.* 49:304-5, March, 1956.



# Fatal Infections In Present Day Practice\*\*

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Infections were once the most common cause of death but they now cause a small proportion of our deaths. We recently reviewed the autopsies performed in the Department of Pathology at Mercy Hospital, Des Moines, for the years 1952 to 1956 inclusive to find out how many infectious deaths were included, and this report is based upon an analysis of the fatal infections in this group.

During this five year period there were 956 autopsies performed. If 80 stillborn autopsies are excluded this leaves 876 cases for review. The autopsy percentage during this period was 59 per cent. There were 48 cases dying of infection. These can be classified as follows:

	Number of Cases	Average Age	Duration
A. Pneumonia			
1. Interstitial	10	6 mos.	5.9 da.
2. Bronchopneumonia	9	43.9 yrs.	6.4 da.
3. Lobar Pneumonia	1	85 yrs.	5 da.
B. Tuberculosis			
1. Pulmonary	3	74.8 yrs.	2 yrs.
2. Tuberculous meningitis	1	31 yrs.	6 yrs.
3. Miliary tuberculosis	1	76 yrs.	1 yr.
C. Nervous System Infections			
1. Brain abscess (E. coli and Staph. aureus)	1	47 yrs.	4 da.
2. Neuromyeloencephalitis	1	34 yrs.	2 wks.
3. Leptomeningitis (Staph & Strep)	1	54 yrs.	3 wks.
4. Meningococcemia	2	3.5 yrs.	1.5 da.
D. Abdominal cavity			
1. Peritonitis	6	63.3 yrs.	21 da.
2. Abdominal abscess	1	64 yrs.	10 da.
E. Subacute bacterial endocarditis	4	65.6 yrs.	30 da.
F. Amebiasis	1	59 yrs.	1 mo.
G. Cryptococcosis	2	56.5 yrs.	2.5 da.
H. Septicemia			
1. Clostridium perfringens	1	48 yrs.	12 da.
2. Pyemia	1	70 yrs.	8 da.
I. Viral hepatitis	1	28 yrs.	1 mo.
J. Clostridium Tetani	1	35 yrs.	9 da.
	48		

There were 20 cases of pneumonia. In these 20 cases were nine cases of bronchopneumonia, one case of lobar pneumonia and ten cases of what we have designated as "interstitial pneumonia." The term "interstitial pneumonia" has been used for want of a better term and we will review these cases in detail later in the presentation. There were five cases of fatal tuberculosis. Three of these were pulmonary tuberculosis, one was tuberculous meningitis and one was miliary tuberculosis. There was one case of brain abscess, one case of encephalitis, one case of meningitis, and two cases of fulminant meningococcemia.

There were seven cases of peritonitis. Six of these were cases of generalized peritonitis and one was that of a localized peritonitis with abscess formation. There were four cases of subacute bacterial endocarditis, one each of amebiasis, septicemia due to gas bacillus, pyemia, viral hepatitis, and clostridial infection, and two cases of cryptococcosis. These 48 cases comprise 5.4 per cent of the total autopsies performed minus the stillbirths.

No effort is made to review all of the cases in detail. Instead, a few of them are given special attention:

Ten cases of interstitial pneumonia were all noted in children and most of them were under one year of age. The disease is really more than an interstitial pneumonia for there are usually lesions in other parts of the respiratory tract and there may be lesions elsewhere in the body, such as the lymph nodes. Many of the children died suddenly. Our understanding of this condition was improved tremendously with the publication in 1953 of a series of articles by Dr. Jacob Werne of the Medical Examiner's Office of New York City which were based on postmortem examination of infants dying suddenly in New York. In these patients were 31 cases where the infants died suddenly

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\*\*Presented at the District Medical Society meeting in Camden, Ark., September, 1957.

# FATAL INFECTIONS IN PRESENT DAY PRACTICE

## FATAL INTERSTITIAL PNEUMONIA (Ten Cases)

			Previous Resp. Infection	Symptoms	Died Suddenly	Autopsy Findings
No. 1	5 mo. F	Yes—4 da.	Slight cold	Yes—in buggy	Pneumonia, bronchitis, edema of lungs. Neisseria catarrhalis and gamma streptococcus.	
No. 2	2½ yr. M	Yes—4 hrs.	Fever	Yes—in bed	Variable congestion, neutrophils & eosinophil infiltration in alveolar tissue. Interstitial inflammation. No bacteriology.	
No. 3	9 wks. M	Bron. 1 da.	None	Yes—in bed	Congestion of the viscera Beta streptococcus.	
No. 4	7 mo. F	Yes—3 da.	Cold, slight temp. vomiting, hyperapneic, anorexia, cyanosis.	Yes—DOA	Bronchitis, interstitial inflammation. No bacteriology.	
No. 5	2 mo. F	Yes—2-da.	Resp. arrest, cyanosis.	15 minutes after admis.	Interstitial inflammation, alveolar hemorrhage. No bacteriology.	
No. 6	4 mo. M	Yes—10-da.	Cold, cough, fever.	No.	Ulceration of tracheal mucosa, interstitial inflammation. Pneumococci, Gram positive bacilli and cocci.	
No. 7	13 mo. M	Yes—2-da.	Dyspnea, cyanosis, fever, brown macules.	2 hr. 15 min. after admin.	Visceral congestion; interstitial inflammation. No bacteriology.	
No. 8	3 mo. M	Yes—5 da.	High fever.	Yes—in crib	Interstitial inflammation. No bacteriology.	
No. 9	10 da. M	Yes—2-da.	Listlessness, anorexia, prem. infant, jaundice, injected pharynx, stupor.	24 hrs. after admission	Interstitial inflammation; alveolar hemorrhage. H. influenzae? along with normal flora.	
No. 10	10 da. M	Yes—1 da.	Cyanotic, dyspneic.	15 min. after admission	Interstitial inflammation. No bacteriology.	

unattended and 16 cases where sudden death occurred while the infant was actually under observation of someone. The autopsy findings in both groups were essentially the same with rubbery consolidation of the lungs, pulmonary edema, and interstitial inflammation. In most cases there was an increase in the pericardial fluid. Bacteriologic studies were performed on a number of the patients but these were difficult to evaluate because of the presence of common respiratory disease such as middle ear infection.

In our experience, sudden death occurring in infants is usually associated with these gross and microscopic findings, and our bacteriologic findings were as varied as those in the cases observed by Dr. Werne.

We believe that most of the cases of sudden death in infants where death was sup-

posed to be due to smothering, and in most of those cases where the infant was supposed to have vomited and choked on the vomitus, were really cases of fulminant infection, probably viral in etiology, with interstitial inflammation of the lung and overwhelming toxemia.

There were nine cases of bronchopneumonia in the series. All of these were associated with some underlying disease which seemed to predispose to the bronchopneumonia. Although the age range is now shown in these cases, all ages are represented. For example, case No. 1 with acute pyelonephritis with uremia occurred in a child; whereas case No. 3 occurred in an elderly patient, 85 years of age, who was injured in an accidental fall. Bronchopneumonia is stated to be a common complication of circulatory fail-



FATAL BRONCHOPNEUMONIA 1952-56  
(Nine Cases)

Underlying Cause
1. Acute pyelonephritis with uremia.
2. Cardiovascular accident.
3. Accidental fall with hip and pelvic injury.
4. Arteriosclerotic heart disease with myocardial failure.
5. Chronic lung abscess.
6. Intrauterine infection with multiple visceral abscesses.
7. Possible septicemia.
8. Postoperative status, hysterectomy and appendectomy with peritonitis.
9. Bilateral bronchiectasis and coronary arteriosclerosis.

ure. It is interesting to note that there is only one such case in this series. Case No. 4 was one of a patient with arteriosclerotic heart disease with myocardial failure who developed bronchopneumonia. In bronchopneumonia the consolidation of the lung is usually patchy and the alveoli which are close to bronchi are most likely to be involved.

Only one case of lobar pneumonia was observed. This occurred in an 85 year old man who was sick for five days prior to death. The patient was hospitalized originally for a bleeding duodenal ulcer and developed the lobar pneumonia while in the hospital.

There were five cases of tuberculosis in the group. Three of these died of pulmonary tuberculosis and it is significant that the average age of these three patients was 78.4 years and that they had an average duration of illness in the three of two years. This experience is similar to that observed by others, for fatal tuberculosis now is most likely to occur in the elderly patient. The younger patients are doing very well on drug therapy.

There was one case of tuberculous meningitis occurring in a 31 year old female

who had had tuberculosis for six years. This patient had a tuberculoma of the brain which had ruptured into the leptomeninges thereby precipitating the tuberculous meningitis.

In tuberculous meningitis the exudate is usually located on the undersurface of the brain and is present in greatest amount in the vicinity of the optic chiasm. Moderate cerebral edema is usually present. Microscopically the same histopathology of tuberculosis as elsewhere with giant cells is observed. Miliary tuberculosis was observed in one case. This was in a 76 year old white female who had had tuberculosis for one year. This patient developed miliary tuberculosis which also included tuberculous meningitis.

There were two cases of fatal meningococcemia. These cases illustrate very well the fulminant nature of this infection. There are few other diseases that are as dramatic. Case No. 1 occurred in a 4 year old boy who had been sick for two days with what was thought to be a respiratory infection. The mother suddenly noted some petechial hemorrhages on the boy's skin so the doctor was called and she was asked to bring him to the emergency room of the hospital. He was admitted and the hemorrhages on the skin began to spread rapidly and coalesce. The child died within three hours.

Case No. 2 was that of a 3 year old boy who had symptoms of a respiratory infection for one day. Because the mother was inclined to be apprehensive the doctor was called. He asked her to bring the child to the emergency room. On arrival in the emergency room only one small petechial hemorrhage was noted on the skin. During the initial examination by the doctor and the intern, however, this petechial

FATAL MENINGOCOCCEMIA 1952-56 (Two Cases)

	Age	Sex	Duration	Adrenal Hemorrhage	Treatment
No. 1	4 yr.	M	2 days	Yes.	Taken to emergency room with few petechial hemorrhages, rapidly spreading. Intravenous sulfa. Died in 3 Hrs.
No. 2	3 yr.	M	1 day	Yes.	Taken to emergency room with small petechial hemorrhages rapidly spreading. Oxygen, terramycin intravenously, penicillin intramuscularly, cortisone and transfusion. Died 9 hr. 40 min.

FATAL INFECTIONS IN PRESENT DAY PRACTICE

FATAL PERITONITIS 1952-56 (Six Cases)

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
AGE	87	61	65	55	72	40
SEX	Male	Male	Male	Female	Female	Female
DURATION	3 da.	4 da.	2½ mo.	8 da.	23 da.	14 da.
PRECIPITATING CAUSE	Resection of bowel for met. ca. from prostate	Colon resection for ca.	Colon resection for ca.	Perforated duodenal ulcer	Resection for diverticulum of colon	Surgery for intestinal obstruction due to adhesions

hemorrhage began to spread and numerous others appeared on the youngster's body. Oxygen therapy as well as massive antibiotic therapy was begun, but the child died nine hours and 40 minutes after admission.

An autopsy *Neisseria intracellularis* was recovered from the blood stream of these youngsters and both of them showed the characteristic finding of the Waterhouse-Frederichson syndrome. It should be kept in mind that the extreme shock noted in these youngsters is not due to the hemorrhage into the adrenal glands with adrenal failure, but instead is due to the overwhelming toxemia of the infection.

There were six cases of fatal peritonitis. It is a tribute to the attending physicians that there was not a single case of fatal peritonitis complicating appendicitis. All of these cases but one were in middle aged or elderly patients. Three of them followed bowel resections for carcinoma, one followed a perforated duodenal ulcer, one a perforated diverticulitis and the last occurred in a 40 year old female who was operated on for intestinal obstruction caused by fibrous adhesions.

There were four cases of subacute bacterial endocarditis. All of these patients

were middle aged or elderly and three of them were suffering from incurable cancer. The fourth had advanced rheumatic heart disease. The aortic valve was involved in three cases and the mitral valve twice. Two of the patients showed aortic valve involvement alone. Subacute bacterial endocarditis has been so rare in recent years that it is difficult to keep it in mind. This group of cases suggests, however, that it should be considered as a possible cause of fever or toxemia in patients suffering from debilitating disease. The symptoms in these cases of subacute bacterial endocarditis complicating rheumatic heart disease or congenital heart disease.

There was one case of amebiasis. This occurred in a 59 year old male who developed symptoms suggestive of appendicitis. An appendectomy was performed but when the abdomen was opened, the cecum was diseased. The patient developed a fecal fistula following the appendectomy and examination of the feces revealed multiple trophozoites of *Endomeba histolytica*. The patient was placed on active treatment but the treatment seemed to stimulate the *Endomeba histolytica* rather than kill them. He continued to have fever and he developed multiple fecal

SUBACUTE BACTERIAL ENDOCARDITIS (Four Cases)

AGE	65	59	74	47
SEX	Male	Male	Female	Male
ACCOMP. DISEASE	Rheumatic Heart Dis.	Ca. of Prostate	Ca. of lung	Ca. of biliary tree
VALVES	Mitral Tricuspid	Mitral Aortic	Aortic	Aortic
ORGANISMS	Alpha Strep	—	E. coli	E. coli B. subtilis
PRESENTING SYMPTOMS	Peripheral edema	Abd. pain thrombosis leg	Wt. loss N & V pain jaundice	N & V jaundice



## FATAL CRYPTOCOCCOSIS 1952-56 (Two Cases)

	No. 1	No. 2
AGE	47 yrs.	66 yrs.
SEX	Female	Male
DURATION	3 months	2 months
SYMPTOMS	Occipital headache for 4 mos. Morning temp. Later disoriented, tetanic contractions, loss of vision and finally stupor.	For 2 mos. frontal headaches, malaise, slight fever, vomiting, irritability, confusion, weight loss, gradual mental deterioration.
DIAGNOSIS:	Yeast forms in smears of spinal fluid.	Budding yeast forms in spinal fluid. Smear positive for <i>C. neoformans</i> .
AUTOPSY FINDINGS	1. Chronic leptomeningitis due to <i>Cryptococcus neoformans</i> (torula). 2. Adrenal gland involvement.	1. <i>Cryptococcus</i> lesions in lungs, lymph nodes, kidney, brain and leptomeninges.

fistulas on the anterior abdominal wall. At autopsy *Endomeba histolytica* was demonstrated in the ulcers in the cecum and colon as well as in lesions from the anterior abdominal wall and from an abscess of the liver.

Two cases of cryptococcosis were noted. The first of these was in a 47 year old white female who was sick for approximately three months. Her neurological symptoms were vague at first but headache and confusion became sufficiently severe to warrant a pneumoencephalogram. Examination of the cerebrospinal fluid obtained by regular lumbar puncture was essentially negative but in the specimen removed at the time of the pneumoencephalogram were some round objects which were first thought to be lymphocytes. Considerable variation in their size, however, was suggestive of cryptococcosis. More careful examination of these structures revealed budding and so a tentative diagnosis of cryptococcosis was made. This was confirmed at the time of autopsy where a chronic leptomeningitis was demonstrated with lesions present in both adrenal glands. The other case was that of a 66 year old white male with a history of two months' duration. His symptoms, likewise, were obscure at first but were subsequently quite marked and included vomiting, mental confusion and mental deterioration. Budding yeast forms were demonstrated repeatedly in smears of spinal fluid and positive cultures of *Cryptococcus neoformans* were obtained prior to death. At autopsy chronic leptomeningitis was demonstrated with lesions noted in the lungs, lymph nodes, kidneys, brain and leptomeninges. It is interesting to note that skin lesions were

absent in both of these patients and in the first patient there was no lesion demonstrable in the lung. Most cases of cryptococcosis show an initial focus in either the lung or the skin with the involvement of the leptomeninges occurring later.

One case of gas bacillus infection was observed. This case was unusual in that the patient was admitted for an investigation of epileptiform seizures. On his 12th hospital day he died suddenly. At autopsy gas bacillus infection was observed with recovery of *Clostridium perfringens* from lesions in the liver. The portal of entry of the gas bacillus could not be demonstrated. This is unusual, because ordinarily gas bacillus infection is secondary to either trauma or some debilitating disease such as leukemia. I can recall one patient, however, who developed fulminant gas bacillus infection as a complication of chronic cholecystitis with cholelithiasis.

One case of viral hepatitis was included in the series. This was a 28 year old white female who was sick for approximately one month. Her illness began with pain and tenderness in the upper right quadrant. She then developed the usual clinical picture of infectious hepatitis, except that she did not respond to treatment. At autopsy massive necrosis of the liver was demonstrated and she had a finding which in our experience, is almost always present in fatal cases of infectious hepatitis. This is the presence of ascites. We have noted this finding repeatedly in fatal cases and its appearance in infectious hepatitis carries with it very serious prognosis implications.

The last patient in the series was a patient with tetanus infection. This patient

was a 35 year old man who was injured in an automobile accident. He was pinned underneath the car and sustained injuries to the chest and head with fractured rear ribs and injuries about the right ear. These included an extensive laceration behind the right ear. The patient was given tetanus antitoxin. Seven days after the accident he developed spasms of the jaw muscles and he subsequently had several convulsive seizures. A tentative diagnosis of tetanus was made and the patient received large doses of tetanus antitoxin and large doses of antibiotics. He died, however, twelve days after the accident. Although the body had been embalmed prior to the autopsy, it was possible to demonstrate Gram positive bacilli contain-

ing spores in smears obtained from the lesion behind the ear.

This review of 48 cases indicates that patients still die of infectious disease but the infections are now likely to be what were once classified in the "uncommon" category. Differential diagnosis must now include these rarer diseases, for in infectious disease they are now the common thing.

#### References:

Werne, J. and Garrow, I., Sudden Apparently Unexplained Death During Infancy, I, II, and III, *Am. Jour. of Pathology*, Vol. 29, 633-675, 833-851, 1953.

(Presented to the Fifth Council District Medical Society Meeting, Camden, Arkansas, September 25, 1957.)

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## Report On Medicare Conference

Immediately following the American Medical Association Clinical Session in Philadelphia December 6, 1957, a conference on Medicare was held. Present were representatives of the State Medical Societies, American Medical Association, and military officers in charge of the program. Colonel Earl C. Lowry, M.C., gave the following report of the first year's operation of the program:

"We were greatly pleased when you gave us the opportunity to appear and review, with you, Public Law 569 and experience gained during its first year of operation, which, incidently, ends today. General Robinson would like very much to be here personally, but prior commitments made this impossible. He sends greetings to all of you and joins us in stating to you that we are most appreciative of the aid, counsel and assistance we have received from the American Medical Association. The Office for Dependents' Medical Care desires especially to thank the Medicare Advisory Committee for its help, Doctor Hamilton, Doctor Hussey, the personnel of your Washington office, your legal counsel and many others have been of utmost assistance. We have had meetings, discussed problems, and thereby have made every endeavor to keep the practice of medicine under Public Law

569 in tune with the high standards and ethics which characterize the practice of medicine in the respective States and Territories.

Today completes our first full year of operation. I would like to review with you some of the happenings of this year.

1. First, *Cost*—As of 30 November 1957, 198,235 hospital claims have been received, totaling \$20,895,467. 316,682 physicians' claims have been received, totaling \$22,745,606. The average physician's claim is about \$71.00 and the average hospital claim is \$105.00. The average length of stay in the hospital is 5.3 days. Colonel Richards will dwell on this subject more in detail later, so I will not discuss it further at this time.

2. Who receives the care under Public Law 569? From civilian sources only a legitimate wife, child, or dependent husband are eligible for care. While other



dependents, mothers, fathers and in-laws may be treated at military facilities, they are not covered in civilian hospitals. Broken down by Service, dependents have received the following percentages of the total cases treated: Army 26 per cent; Navy 32 per cent; Air Force 40 per cent; Public Health Service 2 per cent.

3. The type of service rendered by diagnosis is as follows:

Maternity Cases (Uncomplicated)	37.1%
Miscarriages, Abortions, Other	
Complications of Pregnancy	3.8%
Other Gynecological Conditions	6.2%
Tonsillectomies	12.1%
Respiratory Infections	3.5%
Appendectomies	2.4%
Hernia	2 %
Hemorrhoids	0.9%
Gastroenteritis	0.8%
All Other Diagnoses constitute	31.2%

We have conducted a survey among the dependents and I can report they are both pleased and gratified with the treatment they have received. 50 per cent report they live too far away from military facilities to receive the care which has been rendered. Also, 42 per cent do not live with the military sponsor due to exigencies of the Service.

The first year has not been devoid of problems or difficulties. I would like to review some of them and try to point out their origin, as well as actions taken to facilitate their solution.

#### FIRST OUTPATIENT CARE

Congress placed certain limitations on the care authorized under Public Law 569. Section 201 b of Title II of the Law gave the Secretary of Defense authority for certain reasonable limitations, additions, exclusions, and definitions except that medical care normally considered to be outpatient care shall not be authorized. Exceptions were made in maternity care and injuries. Yet, it has proved exceedingly difficult to make physicians and patients aware of this fact. It has been emphasized in the schedule of allowances, policy letters and all other sources available to us. Yet, many physicians continue to render, in apparent good faith, outpatient care in medical and psychiatric cases. Just this week we had a case of prolonged care

of an asthmatic in the office. Probably, the *most difficult problem* here lies in adding outpatient visits to authorized in-hospital care, before and after hospitalization, in medical, pediatric and psychiatric cases. This is care not provided by law and is a liability of the patient. Specifically, tonsillectomies in the outpatient department have been performed in many instances and the physicians disturbed because payment could not be made. Here, again, as acute medical emergencies in the home, the Directive does not provide for payment.

#### SECOND, DRUGS

When the Program first commenced, December 1956, several physicians communicated with us, pointing out that they furnished drugs for their obstetrical cases. Some indicated that this was the patient's only source of drugs, and others asked specifically if they could be reimbursed if they furnished drugs for the direct management of the pregnancy. In keeping with our Directive for full maternity coverage, it was decided that in those instances where this was customary and was the practice in the community, the physician could furnish the drugs and include the costs in his billing. A policy letter was published to this effect and fiscal agents authorized to pay such billings. There were some physicians who did not desire to participate in this plan and raised an objection to furnishing drugs. It was pointed out that this was not mandatory but authorized where it was already the custom. Some physicians then reported that it placed them in competition with their neighbors if they refused to furnish such drugs, and representations against this plan were frequently made by practicing obstetricians. Also, the pharmacists began registering objections to it by mail, to the Congress, and to our office. They desired a plan whereby the pharmacist could bill directly for drugs furnished obstetrical cases. A survey conducted by our office over a 4-month period showed that out of 8,973 claims paid for maternity care, 936, or 10.4 per cent, included charges for prescribed drugs; at a total cost of \$10,300, or \$11 per claim. Nationwide, approximately 95,711 claims were paid to physicians from 1 April through 31 July

## REPORT OF MEDICARE CONFERENCE

1957 at an estimated cost of \$110,000 for prescribed drugs. I am giving you this overall figure to point out the fact that, since it costs approximately \$3.00 per claim, administratively, to pay each claim, individual billings on drugs would cost more than the drugs themselves. Today this is an enigma in which the Office for Dependents' Medical Care finds itself as to just what action is best. In view of the small number of patients utilizing this part of the program, a critical review as to whether it should be continued seems proper.

The question of *elective surgery* has also proved a difficult one. Section 103 (g) (2) of Public Law 569 specifically excludes "nervous and mental disorders, chronic diseases, or elective medical and surgical treatments . . ." Just when a specific procedure is or is not elective may, of course, vary. Also, surgeons not infrequently combine care that is authorized and elective procedures at the same hospitalization. We, of course, have been billed for realigning of ears, adjustments to the size and shape of the nose, plastic procedures on scars, removal of moles, and other circumstances, which from the total evidence submitted at the time of billing are purely elective by all definitions. We have given long and careful thought to this subject and have sought the advice of national specialty societies in an attempt to prevent both physician and patient from proceeding with a procedure which is not covered for payment. I will describe in detail our plans in this regard under the schedule of allowances to be discussed later.

### CHRONIC DISEASES

As I mentioned, in the above-quoted reference chronic diseases are also excluded from payment by the Program. On the other hand, an acute exacerbation of a chronic disease, requiring hospitalization, is payable. It is often difficult to say when an acute exacerbation ends and Government liability ceases. Therefore, in the administration of the Program, some differences of opinion will inevitably develop in the analysis of such cases. The admission, diagnostic investigations and operations in some cases of hydrocephalus, the mentally retarded, the sequella of po-

liomyelitis, and other chronic conditions, have been difficult to clearly set forth as to Government liability. This area is being given constant study with a view to clarification to the dependent and physician.

### PSYCHIATRIC DISEASES

Nervous and mental diseases are not covered for payment under the Program. However, the Joint Directive provides that acute emergencies of any nature, requiring admission to a hospital, are allowable for the period of the emergency or until other arrangements can be made for treatment. Of course, many psychiatric patients are admitted under this provision, and certified emergencies are often prolonged or even repeated. The crux of the problem here is to prevent the classification of routine psychiatric therapy as an emergency for admission, or the prolonged continuation of the emergency for the purpose of furnishing routine care. After careful advice from psychiatric consultants and the American Psychiatric Association, we are trying to clarify this area so that there will be better mutual understanding.

### SCHEDULE OF ALLOWANCES

Most of you are thoroughly familiar with the haste necessary in order to place the Medicare Program in operation by December 7, 1956. Needless to say, our published schedule of allowances leaves a great deal to be desired in some areas. Based on the experiences of the past year, a manual has been developed which, in our view, will serve as a guide to the physician in rendering care under the Program. I wish to take up this subject in some detail.

### MEDICAL SERVICES

A great deal of time and effort has been spent in adding items which will facilitate the management of medical cases. We now have codes for visits at the home, office and hospital, with explanations as to when such visits are payable. For example, under office visits, it is clearly pointed out that these are authorized only for maternity and injury cases. A plan for the management of the newborn, for such care as is authorized in the hospital, office or home, has been carefully spelled out. Medical visits to the hospital and



## REPORT OF MEDICARE CONFERENCE

consultations have been clearly defined and provision made for cognizance of medical cases requiring difficult histories and physical examinations in the initial work-up. A special section is added on children to cover fluid therapy, accidental poisoning, and special pediatric procedures.

### SURGICAL SERVICES

The "General Information" section of Surgery has been augmented, based on information received from national specialty societies and the experiences of our office. Prehospital care, preoperative care, and postoperative care have been clearly delineated. Provision is made for separate fees when the operator is a person other than the one furnishing such care. Elective surgery has been more clearly defined and items which may fall in this category have been marked in the schedule with a large "E" so that the physician may assure himself before beginning the service that care is authorized. Surgical procedures, which are independent on their own, have been marked with an asterisk, and additional service rendered during the hospitalization of such cases may be billed on a visit basis. Some new items have been added to the fee schedule and many others have been clarified as to nomenclature and meaning. A section on injuries and minor surgery has been added to cover such items as first degree burns, abrasions, lacerations, sprains and similar injuries commonly treated in the office. A section has been added with proper listings of procedures required in the field of physical medicine. Explanations are offered as to when these items are payable.

### MATERNITY SECTION

There will be offered to each State contracting under the Program a choice of having the maternity service paid on a visit basis or on a trimester basis. Plans are submitted with explanations of each method. Cesarean sections have been clarified and codes are listed independently for pre- and post-natal care, and the question of whether or not a pre- and post-natal fee is included with the fee for Cesarean sections will be spelled out. Some duplicate items have been omitted and others clarified. It is believed that the new manual will go a great way in allevi-

ating most of our previous problems in obstetrical care.

### PSYCHIATRIC CARE

Since nervous and mental diseases are excluded from payment except during the period of an emergency, codes for psychiatric treatments did not appear in the original schedule of allowances. Experience has shown, however, that during the period of emergency any and all psychiatric treatments may be carried out. The new schedule of allowances will, therefore, have a section for psychiatric treatments to include original physical examination, insulin and shock therapy, psychotherapy, and other items peculiar to the practice of psychiatry. This will enable fiscal agents on a local basis to process claims on psychiatric cases without forwarding them to the Office for Dependents' Medical Care in the majority of cases. We have also made a diligent attempt to define the liability of the Government in psychiatric cases so that the physician will know how to proceed with the proper management of the case as to liability for payment.

### MISCELLANEOUS

1. Permission has been sought and obtained for the direct payment of nurse anesthetists and physical therapists.
2. Authorization has been sought and obtained for dentists, who are qualified oral surgeons, on the staff of their local hospitals, to admit and discharge patients, and bill for oral surgery if the care given is authorized for payment.
3. Provision has been made for payment of x-ray or radium therapy, when it is commenced or prescribed while the patient is an inpatient receiving authorized care, and is carried out after discharge from the hospital.
4. An improved Form 1863 is being developed, with different colors for hospitals and physicians. The form should be available in 1958.

In summary, I have given you some of the considerations which have confronted the Office for Dependents' Medical Care in the first year of operation. Utilizing experiences gained under the Program to date and the advice of some 12 national medical organizations, including the American Medical Association, we have,

and shall continue as best we know how, to administer the Program in compliance with the tenets of medical practice and legal requirements of Public Law 569. Every effort will be made to keep the practice of medicine under this Program in step with the high standards and ethics of the practice of medicine in our respective States and Territories. When special problems arise with the respective

States and Territories, we will continue to lean strongly on the advice and recommendations of State Medicare Committees. Any apparent efforts of the Office for Dependents' Medical Care to inquire about details of any particular medical or surgical case is based solely on the requirement that we must determine the legal liability of the Government."

## ◆ *What's* NEW ◆

### Neurological Surgery

WM. I. PORTER, M.D.\*

It may be said that Neurological Surgery was conceived approximately seventy-five years ago in England, spent its infant and adolescent years in that country, France, and Germany, and then matured in the United States. It now visits from place to place for the family has grown from a mere handful to a large number living throughout the world.

No doubt the most significant advances in this field are being made in the laboratories across the land. High sensitive electronic devices for probing deeper the secrets of the nervous system are showing new light on the unanswered functions in neurophysiology. Obscure areas in the brain are slowly giving up their secrets to the researcher. As knowledge increases so will diagnostic accuracy and therapeutic success.

Cerebral Arteriography now is a diagnostic procedure universally accepted. The common carotid artery is entered in the neck, percutaneously, using local anesthetic infiltration. A 50 per cent solution of Hypaque (R) is injected rapidly as serial x-ray films are exposed. This

technique visualizes the arterial, capillary, and venous phases of the internal carotid circulation. This procedure may reveal abnormalities in the vascular tree itself such as aneurysms, arteriovenous fistulae, and other malformations. Extracerebral compression by subdural hematoma is demonstrated by the displacement of the cortical vessels. Intracerebral masses displace the arterial tree and are more accurately localized. Gliomas and meningiomas often show characteristic vascular patterns.

With the present technique and contrast medium the patient suffers only minor discomfort during the procedure and has little if any residual pain. Cerebral Arteriography is done with less risk than from pneumoencephalography or ventriculography. Complications are rare; and the procedure, when indicative of a surgical lesion, does not have to be followed by operation as is the case with ventriculography.

Radioactive isotopes or compounds tagged with radioactive isotopes are now being used to localize brain tumors. This technique is not being studied in this area, but the reports show much promise.

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Emphasis in some areas is now on the use of controlled ultrasonic waves to produce destructive lesions in the basal ganglia. This gives relief from many of the distressing symptoms of Parkinsonism as does injection of alcohol into the globus pallidus. It is hoped that success will be forthcoming.

Many cases of infantile hemiplegia with uncontrolled convulsive seizures are now being helped by radical removal of the diseased cerebral hemisphere. The hemispherectomy not only controls the convulsions but improves ambulation by

lessening the spasticity. Hemispherectomy is also done in selected cases where a glioma is present in the nondominant hemisphere. Here the patient and family have to be prepared before hand and told of the resulting hemiplegia and visual field defect.

In spite of the forward progress in Neurology and Neurological Surgery, the need for a better understanding of the nervous system is obvious. We are still acutely aware that brain tumors are often discovered too late. Perhaps in the future some chemotherapeutic agent will be the answer to the infiltrative gliomas.

**A TEACHING SEMINAR**  
**FROM THE**  
**UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE**

## Artificial Radioactive Isotopes\* In Cancer Therapy

HOWARD J. BARNHARD, M.D.

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The availability of artificial radioactive isotopes has opened broad new vistas in the field of medicine. Tracer studies have helped unravel complex physiologic and metabolic processes. Diagnostic tests are now commonplace in the clinical evaluation of thyroid status and are increasingly used in such studies as red cell survival time. This paper will concern itself with the field of cancer therapy in which radioactive isotopes have become well established in recent years. Here, too, new avenues of approach have developed around an isotope such as gold while others, such as cobalt, serve as alternative substitutes for older, already established, methods of treatment.

The isotopes and their applications will be discussed in turn. Included will be some which appear to show promise, in addition to those which are well estab-

lished. But first, a few terms will be briefly reviewed and a cancer therapy classification presented.

### TERMINOLOGY

*Half life.* All radioactive isotopes undergo a continuing process of losing strength or decaying. This decay process is constant for a given isotope and may be conveniently expressed in terms of half life, which is defined as the length of time it takes for one half of the atoms to disintegrate. After each succeeding half life period one fourth, one eighth, one sixteenth and so forth of the original quantity remains.

*Atomic weight.* The atomic weight of an isotope is the number of heavy particles, protons and neutrons, in its nucleus. This weight may be indicated as a superscript to the symbol, Au<sup>198</sup>, or more simply, Gold-198.

\*Presented in part before the Little Rock Academy of Internal Medicine, Little Rock, Arkansas, November 27, 1957.

*Emission.* In the process of decay, alpha, beta and gamma particles or rays are given off. *Alpha* particles are relatively heavy and of short range; they are not presently of therapeutic importance. *Beta* particles are actually electrons in motion; they are lighter and have a longer range than the alpha particle, but are usually stopped by a few mm. of tissue. *Gamma* rays are similar to x-rays in that they are part of the electromagnetic spectrum (as are light, radio waves, etc.), but they possess greater energy and are therefore even more penetrating than ordinary x-rays.

*Mev.* Energy is expressed in terms of million electron volts (mev.). In general, the higher the mev. the greater the penetrability; but the energies of the various types of emission can be compared only within each group, since alpha, beta and gammas can have identical energies but vastly different penetrating power.

*Mc.* The millicurie, (mc.) is one-one thousandth of a curie, the unit of radioactive isotope quantity. The curie was originally defined as the amount of radon (the gas given off by radium) in equilibrium with one gram of radium. This value was very close to 37 billion ( $3.7 \times 10^{10}$ ) disintegrations per second, which is now the accepted definition of a curie. The use of this fixed figure avoids upsetting all radioactive isotope quantities if the value of radium should be found slightly incorrect.

CLASSIFICATION AND SELECTION

Table I presents a workable classification of radioactive isotopes by their method of application. "External" refers to usage in which the isotope does not enter the body but remains outside with only the useful beta or gamma rays passing through the skin surface. In "local placement" the isotope is deliberately put in a given area of the body to exert a relatively localized affect. In the cases of cobalt and tantalum the source is later removed, while gold and yttrium are left in. "Selective uptake" is probably the ideal method of use since here the isotope goes as a homing pigeon to the particular cell it is desired to affect. Unfortunately there are all too few in this category.

Table I  
Classification of Artificial Radioactive Isotopes in Cancer Therapy by their Method of Application.

External	Cobalt—60 Cesium—137 Strontium—90
Internal	
Local Placement	Cobalt—60 Tantalum—182 Gold—198 Yttrium—90
Selective Uptake	Iodine—131 Phosphorus—32

Selection of a radioactive isotope suited to a particular task requires consideration of many factors. In general, there are matters of cost, availability, safety and suitability of emission. If used externally or later removed from the body, a long half life is desirable. If the isotope remains internally, toxicity and metabolic processes in which the isotope participates become important. Here also, the half life should be short or excretion fairly rapid, since prolonged radiation may exert a carcinogenic effect. This response has been seen in early clock dial painters who ingested radium when they "pointed" the brushes in their mouths, and in patients who received thorium dioxide as a radiographic contrast media. Two or three days is a minimum practical half life since the isotope must usually be obtained from a distance.

COBALT-60 ( $\text{Co}^{60}$ )

Cobalt-60 has a half life of 5.3 years. It possesses a very penetrating gamma emission of 1.17 and 1.33 mev., and a 0.31 mev. beta which is easily stopped by the metal container in which the isotope is sealed. No radically new techniques have been inspired by cobalt-60, rather, advantage has been taken of its relatively low cost in using it as a substitute for radium and as a supervoltage source.

Cobalt-60 has been used in all methods suited to radium, principally needles, capsules and cervical applicators. The conversion is a simple one despite the variation in decay rate, and a higher roentgen output. Radium has a half life of 1590 years which means that it disintegrates 1 per cent each 25 years in comparison with the 1.1 per cent per month of



cobalt-60. The decay of radium can be ignored but that of the cobalt-60 must be compensated for by increasing the treatment time every few months. The output of a curie of cobalt-60 is approximately 50 per cent greater than a gram of radium; once a correction is made in the dosage tables, the variation in roentgen output may be ignored (1).

The popularly named "Cobalt Bomb" is a unit for supervoltage (million volt and over) therapy. In terms of dose delivered beneath the surface, it is equivalent to a three-million volt x-ray machine. Because the initial cost of the unit is lower than other supervoltage forms, and its small size permits the use of average sized rooms, cobalt-60 tele-therapy has been called the "poor man's supervoltage." It shares with the other types such advantages as decreased skin reaction and increased tissue penetration in comparison with conventional 200-250 kilovolt therapy. It should be emphasized that no previously irradiation resistant lesion has been found more sensitive to supervoltage energy levels (2).

#### CESIUM-137 (CS137)

Radioactive cesium-137 has a half life of 33 years and emits a single gamma of 0.66 mev. Its beta of 0.5 mev. is absorbed by the metal capsule about the source.

Cesium-137 is receiving serious consideration as a supervoltage source. In terms of depth dose it is equivalent to a one million volt x-ray machine. Cesium-137 has two advantages over cobalt-60. First, its half life is considerably longer (33 years versus 5.3 years) and secondly, it is a waste product of all atomic piles and should, in quantity production, be considerably cheaper (3).

#### STRONTIUM-90 (SR90)

Strontium-90 has a half life of 25 years. It yields a beta of 0.65 mev. as it decays to radioactive yttrium-90 which in turn gives off a beta of 2.18 mev.

The isotope is housed in a small hand held unit illustrated in Figure 1. It has achieved considerable popularity in the treatment of superficial lesions of the eye since introduced in 1950. Among the lesions treated are lymphosarcoma, epithe-



Fig. 1 Strontium-90 beta applicator. The flat surface at the bottom is placed against the area to be treated.

lioma and such benign conditions as pterygia. There is no gamma ray and the irradiation sensitive lens is spared because of the poor penetrating power of the beta ray. At 1 mm. below the surface 60 per cent of the irradiation has already been absorbed, while 99 per cent has been absorbed at 5 mm. The poor penetration is a disadvantage in that thick lesions may not be treated unless most of the tissue is first removed surgically (4).

#### TANTALUM-182 (TA182)

Radioactive tantalum-182 has a half life of 111 days and many gammas which average 1.13 mev. Its beta has a maximum energy of 0.31 mev. and is stopped by a platinum sheath placed around the isotope.

Tantalum-182 is another radium substitute. It is quite flexible and so has an advantage over rigid radium and cobalt needles. Tantalum-182 is used, therefore, in situations where it may be molded to fit a curved surface as in the bladder (5) and about the eye (6).

Because of its relatively short half life, frequent replacement of the sources is necessary and correction for decay must be made with each use. The output of tanta-

lum-182 is about 25 per cent less than that of radium, so the dosage tables must be altered accordingly.

#### GOLD-198 (AU198)

Colloidal radioactive gold-198 has a half life of 2.7 days and is used principally in the treatment of pleural and peritoneal malignant effusions. Though it possesses a gamma ray of 0.41 mev., its effects are mainly due to its beta emission of 0.97 mev. The beta has maximum tissue range of 3.8 mm., but an average range of less than 1 mm. Thus, as in the case of strontium-90, its depth dose is so low that it exerts mostly a surface effect. These beta rays "cauterize" the superficial tissues, thereby slowing or stopping fluid formation. The direct effect on tumor is thought to be minor. Certainly, in any nodule more than a few millimeters thick, the deeper cells would not be affected.

Certain criteria should be met before a patient is given gold-198 therapy: (1) The effusion must be due to malignancy since gold-198 is not effective in other conditions. (2) The rate of fluid formation should be determined by performing a few "taps" as needed. Not infrequently the withdrawals alone will reduce the amount of fluid produced, and the expense and inconvenience of the gold therapy may be avoided. (3) By the previous taps, it should have been ascertained that the effusion is not loculated into two or more pockets. Loculation will interfere with the even dispersion of gold-198 with the result that the treatment loses much of its effectiveness. It may possibly cause irradiation damage to a localized area. (4) The patient should not be moribund. While this treatment is palliative in 50 to 70 per cent of cases, its contribution to the care of a patient nearly dead from the cumulative effects of malignancy is nil. We have had one patient die shortly after gold-198 administration. The radioactivity made autopsy and embalming a problem and delayed burial.

Before treatment most of the fluid is withdrawn. The gold-198 is then administered through a needle, directly with a special lead shielded syringe (Figure 2) or through tubing when isotonic saline is used to displace the colloidal gold-198 from its vial into the patient. The dosage range



Fig. 2 Lead shielded syringe for injection of radioactive isotopes which emit gamma rays.

is approximately 75-100 mc. in the pleural space and 100-150 mc. in the peritoneal cavity. The patient is turned frequently during the first 12 hours to aid in dispersion. The distribution is checked by measurement of the gamma rays that penetrate to the outside and if the gold is found to be loculated an effort may be made to remove it.

Two substitutes for the gold-198 treatment of effusions are in use, radioactive yttrium-90 (see below) and nitrogen mustard. Nitrogen mustard is less expensive and appears to be as effective as gold-198 (7).

Radioactive gold-198 is being used by some in the treatment of carcinoma of the cervix (8) and the prostate (9). The successful application requires a high degree of skill since the isotope must be brought into immediate proximity with the tumor bearing area. Unfortunately, although the colloidal substance is picked up by the lymph system and carried to normal nodes, it is likely to be blocked by malignant cells in the very lymphatic



drainage area where it would serve best (10).

There has been some work in the use of radioactive gold following operations where "seeding" of small clusters of malignant cells may have occurred. The hope here is that the limited beta range may be sufficient to destroy thinly layered cancer cells.

#### YTTRIUM-90 (Y90)

Radioactive yttrium-90 is the isotope to which strontium-90 decays. It has a half life of 2.54 days. Its beta of 2.18 mev. is more penetrating than that of gold-198, having a maximum tissue range of 11 mm. Yttrium-90 is used principally as a substitute for radioactive gold-198 in the treatment of malignant effusions. In the pleural space 10-30 mc. are used, while in the peritoneal cavity the range is from 10-40 mc. Results are comparable with gold-198 therapy. Yttrium-90 has no gamma emission and so is safer to handle, but this is a disadvantage in that one is unable to determine by external measurements whether the isotope is well distributed (11).

#### IODINE-131 (I131)

Radioactive iodine-131 has a half life of 8.0 days and emits principally a beta of 0.6 mev. and a gamma of 0.37 mev. The major effect is considered due to the beta which has a maximum tissue range of about 2 mm. and an average range well below 1 mm.

When iodine-131 is successful in the treatment of carcinoma of the thyroid the result may be almost miraculous, but unfortunately it is effective in less than 15 per cent of cases. Its use is limited to tumors which will take up iodine-131 and these are mostly of the alveolar cell type, i. e. those which most closely resemble the normal acinar structure of thyroid gland. When a tumor is found to pick up iodine-131 in preliminary tracer studies, the thyroid gland should either be removed surgically or destroyed by an initial iodine-131 dose. This ablation will avert competition when the therapeutic dose is given. Usually the uptake of the metastases is so low that this competition becomes a significant factor. An additional advantage in the removal of the thyroid is that the reduction of circulating thyroxine will

prompt the pituitary to put out thyroid stimulating hormone (TSH). The TSH will tend to increase the uptake rate of the metastases.

Ordinarily 100 to 150 mc. are given as the initial therapy dose but treatment must usually be repeated because the malignant cells are never all destroyed. An individual cell cannot take up sufficient radio-iodine to cause its own death, thus each cell is dependent upon irradiation from adjacent cells. In the same vein, it is thought that the peripheral cells of a nodule do not receive sufficient irradiation to destroy them. And so the treatment routine becomes one of repeated palliation by the administration of additional iodine-131 from time to time, usually in 50 mc. doses. Six months, or greater intervals should be allowed since there is danger of bone marrow depletion once a total of 500 mc. has been given (12).

We have followed a patient who in 1942, at the age of 17, was found to have carcinoma of the thyroid. The 1946 chest film, (Figure 3), the earliest one available to us, when compared with one made in 1957 (Figure 4) shows that the metastatic nodules, though still present, are nicely under control. He had by 1957 received



Fig. 3 Patient with thyroid carcinoma — 1946. Multiple metastatic nodules throughout both lung fields.





Fig. 4 Same patient as in Figure 3 eleven years later (1957). Metastases held in check with iodine-131 therapy.

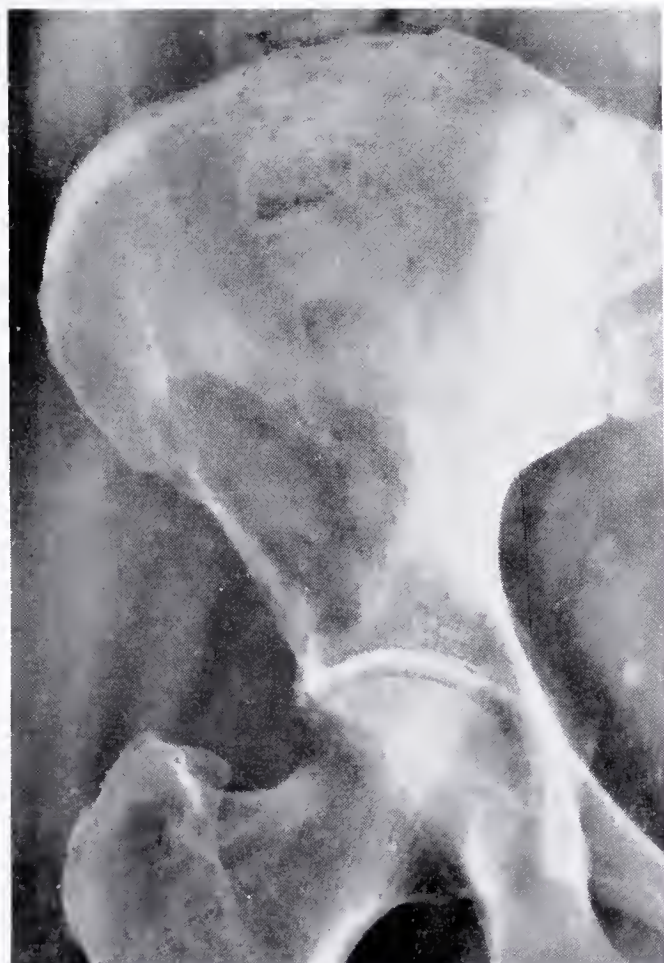
a total of approximately 400 mc. of radioactive iodine.

#### PHOSPHORUS-32 (P32)

Radioactive phosphorus-32 has a half life of 14.3 days. It is a pure beta emitter with a peak energy of 1.7 mev. and an average of 0.7 mev. The maximum range in tissue is 8 mm. but the average range is only 2 mm. Phosphorus-32 tends to go to cells which are in active mitosis and is extensively used in the treatment of polycythemia vera and chronic leukemia.

Phosphorus-32 is probably the treatment of choice for polycythemia vera in which it is effective in 90 per cent or more of patients. The diagnosis of true polycythemia, rather than of a secondary elevation from congenital heart disease, cor pulmonale, etc., must be established without question prior to treatment. The oral dose varies from 4 to 7 mc. dependent mainly upon the degree of elevation of the erythrocyte count and hemoglobin. The effect

Fig. 5 Metastatic breast carcinoma. Left, lytic lesion of right ileum. Right, five months after combined testosterone and phosphorus-32 therapy the lesion has sclerosed in.





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**Dosage:** The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive  $\frac{1}{4}$  of the adult dosage. It is recommended that these dosages not be exceeded.

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**Tablets:** Each tablet contains 0.5 Gm. ( $7\frac{1}{2}$  grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

**Syrup:** Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

References: 1. Griebble, H. C. and Jackson, G. G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958. 2. Editorial *New England J. Med.* 258:48-49, 1958. 3. Jones, W. F., Jr. and Finland, M., Sulfamethoxypyridazine and Sulfachloropyridazine. *Ann. New York Acad. Sc.* 60:473-483, 1957.

\*Reg. U. S. Pat. Off.



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Pearl River, New York



is upon the hemopoietic tissue, and the response to therapy, as reflected in the blood, appears delayed since the circulating red cells have an average life of 120 days and are not affected by the phosphorus-32. During the early period after treatment the patient may not get relief from symptoms unless more immediate steps, such as phlebotomy, are employed to reduce the total count. Three months is almost a minimum time at which to re-evaluate the patient and one should probably not give additional phosphorus-32 earlier than six months.

In the treatment of chronic leukemia radioactive phosphorus is similar to x-ray in that both are used as a form of "whole body" irradiation. The dosage schedule is more difficult to establish with phosphorus-32 since it exerts its effect over a prolonged period and in giving additional doses one must be concerned with the undecayed portion which remains in the body. Phosphorus-32 has the advantage of convenience if an x-ray therapy unit is not readily available, or if a large series of patients are to be treated. A practical method is to give approximately 2 mc. every week or two until the leucocyte count is depressed to 20,000-30,000. One then determines the "maintenance dose" of phosphorus-32 necessary to keep the count at this level. Patients may in this manner be kept symptom free and able to lead useful lives for many years (13).

The use of phosphorus-32 in metastatic malignancy has received recent impetus from the finding that when coupled with testosterone there is a striking effect on lytic bony metastases, particularly those from carcinoma of the breast (14-15). Figure 5 shows such a case from our own series. Note the marked sclerotic replacement of the lytic area. The dense area is more extensive than the original destructive zone suggesting that the involved area was larger than could be seen on the roentgenogram.

While phosphorus-32 has been tried in many other conditions, such as lymphosarcoma, plasma cell myeloma, Ewings sarcoma, its use has not met with general acceptance (16).

## References

1. Meschan, I., Regnier, G., Nelson, J. W., and Lafferty, A. W. Dosage tables for cobalt 60 for use with interstitial, plaque and intracavitary applications. *Am. J. Roentgenol.* 71: 320-330, 1954.
2. Barnhard, H. J. Supervoltage therapy comes of age. *New. Eng. J. Med.* 258: 275-277, February 6, 1958.
3. Brucer, M. Automatic controlled pattern cesium 137 teletherapy machine. *Am. J. Roentgenol.* 75: 49-55, 1956.
4. Friedell, H. L., Thomas, C. I., and Krohmer, J. S. Evaluation of clinical use of strontium 90 beta-ray applicator with review of underlying principles. *Am. J. Roentgenol.* 71: 25-39, 1954.
5. Wallace, D. M., Stapleton, J. E., and Turner, R. C. Radioactive tantalum wire implantation as method of treatment for early carcinoma of bladder. *Brit. J. Radiol.* 25: 421-424, 1952.
6. Trott, N. G., and Wheatley, B. M. Tantalum 182 wire gamma-ray applicators for use in ophthalmology. *Brit. J. Radiol.* 29: 13, 1956.
7. Bonte, F. S., Storaasli, J. P. and Weisberger, A. S. Comparative evaluation of radioactive colloidal gold and nitrogen mustard in treatment of serous effusions of neoplastic origin. *Radiology* 67: 63-66, 1956.
8. Allen, W. M., Sherman, A. I., and Arneson, A. N., Further results obtained in treatment of carcinoma of the cervix with radio-gold: Progress report. *Am. J. Obst. and Gynec.* 70: 786-790, 1955.
9. Kerr, H. D., Flocks, R. H., Elkins, H. B., Culp, D., and Evans, T. C. Follow-up study of one hundred cases of carcinoma of prostate treated with radioactive gold. *Radiology* 64: 637-641, 1955.
10. Thomas, C. C. Jr., Lymphatic dissemination of radiogold in presence of lymph node metastases. *Surg. Gynec. & Obst.* 103: 51-56, 1956.
11. Siegel, E. P., Hart, H. E., Brothers, M., Spencer, H. and Lasizlo, D. Radioyttrium ( $Y^{90}$ ) for palliative treatment of effusions due to malignancy. *J. A. M. A.* 161: 499-503, 1956.
12. Clinical Use of Radioisotopes: A manual of technique. Edited by T. Fields and L. Seed. 455pp. Chicago: Year Book Publishers, 1957.
13. Osgood, E. E., and Seaman, A. J. Treatment of chronic leukemias: results of therapy by titrated, regularly spaced total body radioactive phosphorus, or roentgen irradiation. *J. A. M. A.* 150: 1372-1379, 1952.
14. Maxfield, J. R. Jr., and Maxfield, J. G. S. The use of radioactive phosphorus and testosterone in the treatment of metastatic lesions in bone from breast and prostate. *Int. J. Appl. Radiat. and Isotopes*, 1: 133-134, July, 1956.
15. Maxfield, J. R. Jr., Maxfield, J. G. S. and Maxfield, W. S. The use of radioactive phosphorus and testosterone in the treatment of metastatic lesions in bone from breast and prostate. *South. M. J.* in press. 51: 320-328, March, 1958.
16. Diamond, H. D., Craver, L. F. and Woodard, H. Q. Radioactive phosphorus: III. In treatment of malignant lymphomas, plasma cell myeloma, Ewings sarcoma and osteogenic sarcoma. *Cancer* 10: 143-150, Jan.-Feb., 1957.

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## What Is Your Diagnosis?



FOR ANSWER SEE PAGE 542



# Arkansas Public Health at a Glance

## Syphillis Again A Problem In Arkansas\*

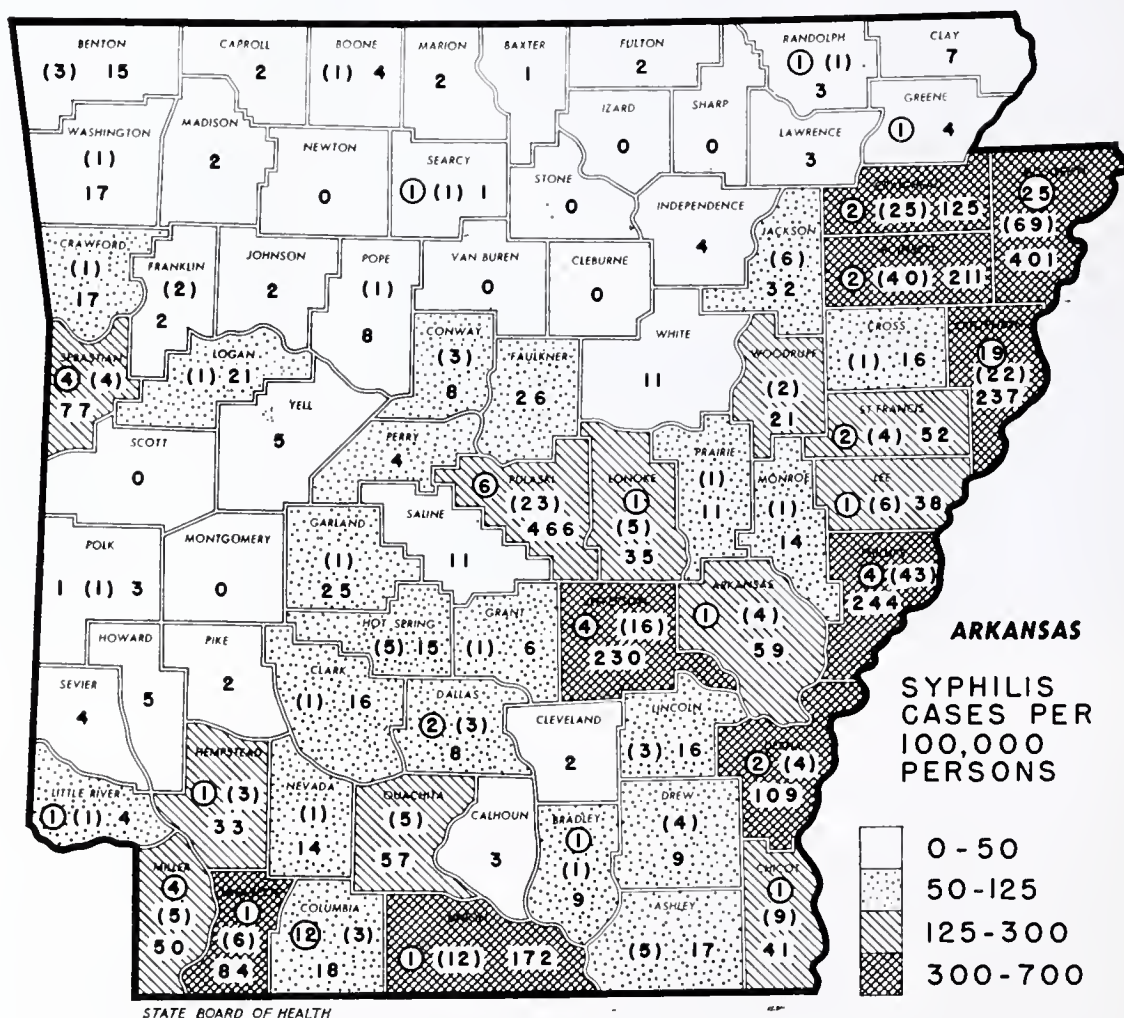
Prior to and during World War II the United States Public Health Service initiated a nationwide program of venereal disease control in cooperation with State Health Departments. After the war the program was intensified. Strenuous efforts were made to find the cases and bring them to treatment. By 1953 the Rapid Treatment Center in Hot Springs which had been equipped for large scale operation was closed because penicillin of-

fered a rapid, effective cure and the syphilis rate had been reduced to the point that such a center was no longer economically feasible. With the closing of the Rapid Treatment Center the control of venereal diseases became again mainly a responsibility of the community. What has happened to the syphilis rate in Arkansas since 1953 can be seen in the accompanying graphs. The distribution of cases and case rates for 1957 is shown on the accompanying map.

\*Sponsored by the Arkansas State Board of Health.

Limited funds for venereal disease con-

### SYPHILIS IN ARKANSAS, 1957



② = INFECTIOUS (PRIMARY AND SECONDARY) CASES

KEY: (4) = EARLY LATENT CASES

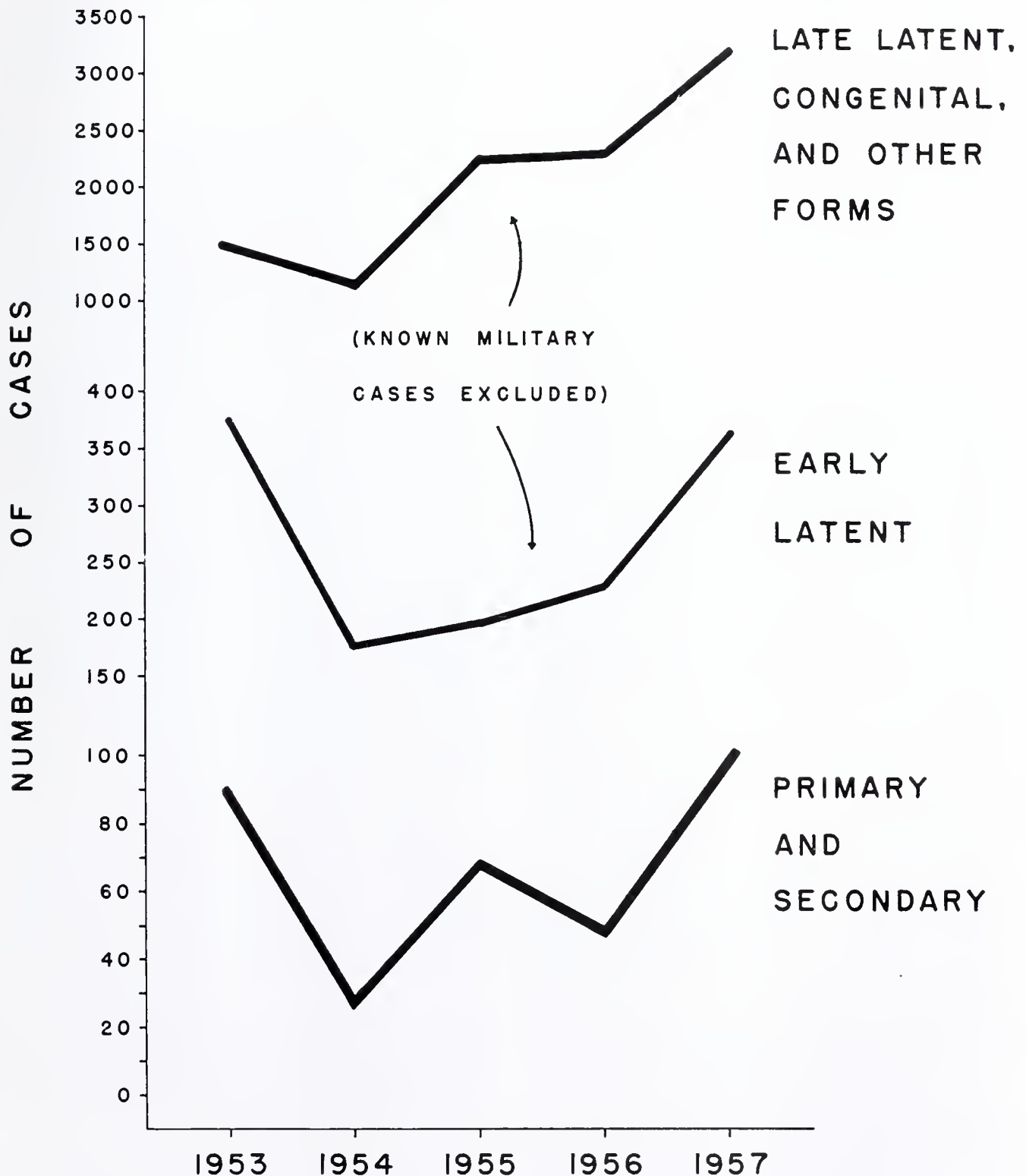
28 = OTHER LATE SYPHILIS CASES

## FEATURES

trol are now available from the Federal Government on a special project basis. This type of budget enables the state to acquire funds according to needs. Additional new projects are now under way in

Arkansas to evaluate and control our syphilis problem; however, the control of syphilis and other venereal diseases is still the responsibility of the community and its physicians.

## SYPHILIS TRENDS IN ARKANSAS





## Always More Beds and Bureaus\*

BY THOMAS J. ANDERSON

More money goes for veterans benefits than for the entire Department of Agriculture. Almost 3 million veterans will receive compensation and pensions from the government this year and 883,000 families of veterans who have died will get benefits, even if the veteran died in a knife fight last year in a Chicago saloon.

The government is also going to pay the school bills of 573,000 veterans. The Veterans Administration says it needs an extra \$67,760,000 of your money "to cover uncontrollable education and training costs."

We fourteen million veterans who no longer carry our VA life insurance policies, plus all other taxpayers, are being forced to pay 7,000,000 policy-holders a \$24.5 million annual subsidy. Any reason why veterans shouldn't pay actual cost-to-the-government of their insurance?

There are nearly 22,500,000 veterans in the U. S. today and it won't be many years until it'll average one to every family. With their dependents and survivors they thus make up about one-half of our population — a preferred half — getting benefits, whether needed or earned, which the other half is denied. And for one-half of the American people, we thus have Socialized medicine.

The older the veteran population gets, the higher the cost. Over half of the budget for veterans goes for compensation and pensions for 2.8 million veterans and the survivors of over 850,000 deceased veterans (regardless of how they died). By the end of this century payments will be about twice the present yearly 3 billion dollars. That is, unless we get over

our ridiculous emotional binge about "our boys" and empty the gravy train for all except those who have service-connected disabilities. They're a small fraction of the total.

If we have atomic war and any of us survive, I presume we'll *all* get veterans' benefits. As a veteran who served overseas I think veterans benefits are a vicious political racket, except for those seriously injured or killed in combat and *they*, and their families, don't get nearly enough.

### *Leading to Socialized Medicine*

The Hoover Commission reports that there are already far more VA hospitals and beds than are needed. Many millions can be saved by cancelling new VA hospitals already authorized. 75 per cent of the veterans in any veterans hospital are non-service connected, able-to-pay patients. Many are gold-bricking ne'er-do-wells. Most never served overseas, never heard a shot fired except in practice, and are letting the rest of us pay their doctor bills for their hangovers, arthritis, pneumonia, venereal diseases, and automobile wrecks. The clamor goes up for more and more veterans hospitals, and more socialized medicine.

In our town they've got approval to spend \$15,000,000 on a new one. And no responsible authority, as far as I know, objected. Everybody's afraid to. And so outrageous benefits go permanently to preferred citizens because of a perpetual emotion "for our boys" which defies logic.

A year or so ago I editorialized in favor of making only service-connected disabilities eligible for hospitalization in veterans hospitals. I'd have gotten less abuse by attacking motherhood.

\*Reprinted from THE ARKANSAS FARMER, December, 1957.

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## Medicine in the News

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### Richardson is President-elect

The New President-Elect of the American Academy of General Practice is Dr. Fount Richardson of Fayetteville, Ark. Dr. Richardson who retires this year as chairman of the AAGP Board of Directors was unanimously elected by the Congress of Delegates March 24, 1958, in the Statler Hilton's Grand Ballroom. He will be installed next year in San Francisco, succeeding Dr. Holland T. Jackson who took over the presidency in inaugural ceremonies March 26.

### New Legislation...Unemployment Insurance...Veterans Benefits...

#### Social Security

**Unemployment Insurance** — Senator John F. Kennedy of Massachusetts and 16 other Senators propose to bring all employers under unemployment compensation coverage. The Kennedy bill is S. 3244. Under present law, employers with three or fewer employees need not participate; this bill would bring in many physicians who now are not required to cover their one, two or three employees. If this bill passes, all employers will have to pay to the fund a sum equal to 3 per cent of the first \$3,000 of each employee's annual salary. However, if they also pay into a state unemployment compensation fund, they could receive a tax credit of up to 90 per cent of the federal payment. In return, their employees would be entitled to unemployment compensation, the amount and length depending on the particular state law. The Kennedy bill also would tighten up requirements on states, so monthly payments would be larger and the benefits extend for a longer period. In the House, Rep. Eugene McCarthy (D., Minn.), has introduced an identical bill, H. R. 10570.

**Veterans Benefits** — In H. R. 10961 Rep. Rogers (R., Mass.) asks that any veteran over 65, in receipt of a pension for more than one year, be entitled to ocu-

lar and dental care on an outpatient basis, the same as though his condition were service-connected.

### Fogarty Favors Custodial Care Change in Hill-Burton Law

When it comes time to extend the Hill-Burton hospital construction law, Rep. John Fogarty (D., R. I.), chairman of the important House Appropriations subcommittee on the Department of HEW budget, would like to see it provide for construction of custodial facilities for the aged. Hill-Burton Act expires in June, 1959, but this Congress is expected to extend it. The Rhode Island Congressman also favors enlarging the staffs of HEW and Labor Department that deal with problems of the aged.

### Hill-Burton Increase Proposed In Recession Move

Anti-recession moves by Congress and the administration this week found health programs affected. First move came with President Eisenhower's decision to restore \$46 million for Hill-Burton hospital construction, bringing the requested total for the next fiscal year to \$121.2 million. This would be the same amount appropriated a year ago for this fiscal year. Prospects are considered good that the total may go even higher than the \$121 million (the authorized ceiling is \$210 million).

### Clinical Management of Anemias of Various Etiologies

Dr. H. L. Klemme of Yellville, Arkansas, presented a paper titled "Clinical Management of Anemias of Various Etiologies" before the Boone County General Hospital Staff on Tuesday, March 4, 1958.

Dr. Klemme said in part: "In Yellville, Marion County, I soon found that anemias were to be a great problem. The men and women consistently had hemoglobin values of around 12 grams or less. This is a report of 38 patients treated with an iron-cobalt mixture which contains cobalt. The complete formula is as follows:



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Intrinsic Factor—Vitamin B-12 concentrate	1 U. S. P. Oral Unit
Folic Acid	2 mg.
Ferrous Sulfate	400 mg.
Ascorbic Acid	100 mg.
Molybdenum	1.5 mg.
Cobalt	0.5 mg
Copper	0.5 mg
Manganese	0.5 mg
Zinc	0.5 mg

Results

The 38 patients treated with this iron-cobalt mixture consisted of 24 women with nutritional anemia, 5 women with nutritional anemia combined with other diseases, 4 with secondary anemia combined with other diseases, one patient with secondary and nutritional anemia, three women with nutritional anemia of pregnancy, and one woman with pernicious

anemia of pregnancy. The period of treatment ranged from 14 days to 10 months, and in some patients therapy is being continued. 29 patients of the 38 treated were evaluated as excellent, 6 as good, and 3 patients responded poorly. During therapy the hemoglobin values of most women increased 0.55 gm to 3.05 gm, and in several patients even from 3.05 gm to 5.50 gm. See Table.

TABLE I  
CROSS SECTION OF RESULTS IN PATIENTS  
WITH ANEMIAS OF VARIOUS ETIOLOGY

PATIENT	AGE	SEX	DISEASE	HGB./GM Before	HGB./GM After	PERIOD Treated	REMARKS	RESULTS
B. K.	50	F	PAP	9.20	12.25	3 mos.	Treatment being continued	Excellent
W. B. B.	43	F	NA	6.20	11.30	35 days	Therapy being continued	Excellent
G. S.	26	F	NA	12.60	16.00	30 days	Therapy Discontin- ed. Hgb. maintained	Excellent
O. W.	50	M	NA	8.50	14.00	10 mos.	Therapy Discontin- ed. Hgb. maintained	Excellent
J. Q. A.	65	F	SA + NA	11.95	13.60	2 mos.	Therapy being continued	Good
L. A.	37	F	NA	12.60	13.60	5 mos.	<sup>c</sup> Therapy being continued	Good
F. W.	36	F	NA + OD	11.00	10.65	8 mos.	Also meno- metrorrha- gia, cardiac & retinal surgery	Poor

Key	SA + NA - Secondary anemia Plus Nutritional anemia
NA + OD - Nutritional anemia Plus other diseases	PAP - - - Pernicious anemia of pregnancy NA - - - Nutritional anemia

### Cancer Seminar Held

A cancer seminar sponsored by the Arkansas State Cancer Commission and University Hospital Tumor Clinic was held March 20, 1958, at the University of Arkansas Medical Center. Dr. Frank G. Kumpuris of Little Rock is chairman of the Association of Tumor Clinic Staff Members in Arkansas. Dr. Masauki Hara, also of Little Rock, was program chairman for the event and presented the following program: "Pathology of Thyroid Cancer" by Dr. Patrick Fitzgerald; "Clinical Aspects of Cancer of the Thyroid" by Dr. Oliver Moore, "The Early Diagnosis of Breast Cancer" by Dr. Jerome Urban; and "Diagnosis and Management of Tumors of the Soft Somatic Parts" by Dr. Robert Booher, all of New York City.

### VA Establishes New Medical Division to Study Aging

To coordinate about 2,000 studies of disorders of the aged now under way in Veterans Administration hospitals, and to survey possibilities for new research in retarding physical or mental deterioration, the VA has established a new division in its department of medicine and surgery in Washington. Dr. Charles C. Chapple, who heads the new division, said it will enable VA to focus skills of specialists on problems of the aging. Dr. Chapple formerly directed VA's clinical studies division.

### New Developments in Poliomyelitis Vaccine Drive

Looking to the return of the poliomyelitis season, the Public Health Service this week set the stage for a stepped-up public campaign to encourage more persons to take inoculations. These were some of the developments:

1. PHS announced that a new Census Bureau survey had disclosed that as of March 1, there were some 2.5 million more persons under age 40 who had not had any polio vaccine than had previously been estimated. This brings the total to 48.5 million unvaccinated. (One encouraging note was that the survey had picked up another 7.5 million who had had all three inoculations, for a total of 42.5 million.)

2. Surgeon General Burney warned there would be serious epidemics this year

unless there was an acceleration of vaccination programs. Should 1958 turn out to be a bad year like 1952, then 300,000 cases could occur among the unprotected, he claimed.

3. A 14-man ad hoc committee meets to consider the question of whether a booster shot should be recommended for those who have taken the three inoculations. The meeting also takes up progress reports on the continuing campaign to get every person under age 40 vaccinated with the three shots, and then turns to plans for intensifying the effort during the spring.

### \$13.6 Million for Mental Health Training

The National Institute of Mental Health since last July 1 has awarded \$13.6 million in grants for training in psychiatry, psychology, psychiatric and school social work and psychiatric training. The teaching grants are used to establish, expand or improve training in mental health at undergraduate as well as graduate levels. Recipients include medical schools, hospitals, clinics, psychology departments of universities, collegiate schools of nursing, schools of social work and schools of public health. In addition, these schools may apply for federal help to support promising students in their studies in mental health fields.

### Problems of Aged Discussed at Two-day Washington Conference

Two hundred delegates from 28 states, representing all groups concerned with problems of the aging, today are winding up a two-day meeting, the annual spring session of the National Committee on the Aging, a voluntary non-government organization. Views expressed on medical problems of the aged include the following:

Secretary Folsom. Any changes in social security should wait on report of a committee now studying it. One of the great needs is for facilities simpler than hospitals where the aged can be cared for at costs less than hospitals have to charge. Surgeon General Burney. "Medical and related problems are the core." . . . Untold amounts of severe disability could be pre-



vented if early detection of certain conditions were pressed. "We intend to do all in our power to promote appropriate facilities and services . . ." Assistant Labor Secretary Newell Brown. "I urgently recommend to the committee that it find ways to publicize these (federal) loan facilities" for aid to nursing homes.

Wilbur Cohen, now at University of Michigan, Social Security official under Oscar Ewing. "Five to ten billion dollars more per year has to be spent on older people . . . Greatest need is in the financing of medical care. It is a public responsibility. It is absolutely necessary that we assure meeting the cost of hospital care (for the aged) under social security."

N. Y. State Senator George R. Metcalf, a leader in New York public health and health insurance legislation. "About two-thirds of the state's population 65 and over lack hospital insurance and the record on medical and surgical coverage is worse . . . (but) . . . I am old-fashioned enough to think most of us can take care of our own needs if we know the methods . . ." He described a New York proposal to require a "level premium for life" on all health insurance sold. In a spirited exchange with Cohen he defended this as the best system for meeting the medical care problem, not the Forand bill. This argument did not prompt questions from the floor on the Forand bill at this time.

John L. Hawn, Monsanto Chemical Co. Told of a movement now to experiment with release of life insurance funds carried by older people to meet the costs of prolonged illness. G. Warfield Hobbs, chairman of the committee on the aging and vice-president of National City Bank of New York City. European countries are swinging over to pay-as-you-go social security and we should, too . . . James H. Robins, president of the American Pulley Co. If given the chance, people can take care of themselves in older years by continuing some form of work and self-saving. We must avoid undue faith in Social Security — this is just a backlog of protection.

Dr. J. Russel Lee, director of the Palo Alto Clinic. Wherever possible, care

should be furnished by a private physician skilled in geriatrics; special training should be arranged for doctors in this field. Surveys have shown that such patients can be cared for properly at an average cost of \$100 per year in doctors' fees.

### **Catastrophic Insurance Up 20-Fold, Folsom Testifies**

According to Secretary Folsom, major medical insurance coverage has increased almost 20-fold in five years. He told a House Appropriations subcommittee, in testimony just released, that 700,000 persons had such coverage in 1952, but that by 1957 the total had reached an estimated 13,000,000. "We still are putting our emphasis on the voluntary programs," he said, "but the only thing I can report is progress." Chairman Fogarty commented: "I think we could do more in this field than we are doing."

### **American Legion Asks Veterans Committee to Save VA Beds**

American Legion's national commander, John S. Gleason, Jr., has asked the House Veterans Affairs Committee to use its influence to see that no Veterans Administration hospitals or beds are shut down because of budgetary reasons. In testimony February 25, Mr. Gleason interpreted the fiscal 1959 budget as cutting more than \$20 million from the VA's unpublished request for medical administration, inpatient care and supply. This action, he said, was taken by the Budget Bureau, which also recommended a reduction of 1,000 hospital beds for tuberculosis patients for a saving of \$6 million.

Mr. Gleason said that "far from closing hospitals, the VA hospital construction and maintenance program for the Veterans Affairs Committee authorized should be carried out not only for the benefit of the needy veterans but for the benefit of our economy as well."

Commenting on the Bradley Commission recommendations of 1956, the Legion chief expressed confidence that "no Congress will agree with the commission's expressed philosophy that a war veteran is entitled only to as much consideration from the nation he defended as the person who stayed at home."

### **AMA Urges Military Career Incentives be Retained**

A letter from AMA General Manager F. J. L. Blasingame to a House Armed Services subcommittee urges that the medical officer career incentive pay schedule, enacted in 1956, be retained in any base pay legislation enacted by Congress this year. Under consideration by the subcommittee, headed by Rep. Paul J. Kilday (D., Texas), is a proposal to revise the base pay of all military personnel. While the proposal would mean raises to some medical officers, Dr. Blasingame points out that its effect also would be to wreck the carefully-arranged pay schedule of the 1956 act, that already has reduced the number of medical resignations and increased the strength of the regular corps. Dr. Blasingame's letter points out that the stepped-up salary increases were "so spaced as to appeal to seasoned officers, many of whom were leaving military careers for the private practice of medicine." The schedule now on the books, he said, "is a valuable method of preserving and improving the quality of military medical manpower."

### **AMA To Publish Tabloid Newspaper**

**Chicago** — The American Medical Association announced today that it will soon publish a new, 16-page tabloid newspaper called "The AMA News" and that it will be distributed every two weeks to approximately 200,000 physicians.

In making the announcement, Dr. F. J. L. Blasingame, newly-appointed general manager of the AMA, said the paper "will bring to the attention of our members the multitude of projects and activities carried on by their association, as well as other nonscientific news of special interest to the medical profession."

### **Career Incentive Plan Backed: Medicare Investigation Begun**

Hearings continue before a House Armed Services subcommittee on a bill to revise the military services' base pay structure, with indications that the measure will be reported favorably. But comment from members at the hearings suggests that before the subcommittee completes action on it, the bill will be amend-

ed to preserve the two-year old medical officer career incentive pay plan. As now written, the bill would scale down the special pay authorized for experienced medical officers, designed to retain them in service.

Last week the American Medical Association asked the subcommittee to retain the career incentive schedule of increases, "as a valuable method of preserving and improving the quality of military medical manpower."

In another military medical development, the staff of the House Appropriations Committee has been instructed to investigate the practices, policies, costs and implications of the Dependents' Medical Care program, which started in December 1956. The study already has begun, but it is not known how extensive it will be.

### **National Conference on Employee Retirement**

A national conference on the advantages of old-age security for employees was held March 19 at New Orleans, under sponsorship of the National and New Orleans Chambers of Commerce. Speakers included industrialists and actuaries. About 300 persons attended. Explaining the meeting, the National Chamber says: "There has developed a trend in recent years for the Federal government to meet the needs of individuals for an adequate retirement income as well as other benefits. While recognizing the need, most businessmen believe that the more individuals can do for themselves, the more independence they will maintain beyond their wage-earning days."

### **Congress Investigators Looking Into Medicare**

A Congressional investigation of Medicare is not unlikely. Fact is that investigators on staff of House Appropriations Committee have about completed a field "study," which is a preliminary to a full dress inquiry. Meantime, leading members of subcommittee on military appropriations have been subjecting service officials to intensive interrogation on all phases of this 15-month-old program of



medical and hospital benefits for servicemen's dependents.

Within a matter of days, a staff report on the preliminary investigation will be filed. Its contents and recommendations will go far toward decision whether to launch a formal inquiry. Note: It is reported that complaints under investigation include charges that Medicare is socialistic, that its fee schedules are proving embarrassing to Blue Shield's lower fees in some areas, and that it is burying participating doctors and hospitals under mountains of paper.

#### **Award to Jacob Furth, M. D.**

The University of Texas M. D. Anderson Hospital and Tumor Institute presented the 1958 Bertner Foundation Award to Jacob Furth, M. D., Associate Director of Research, Children's Cancer Research Foundation, Boston, Friday, March 7th. The Bertner Foundation Award is presented annually for an outstanding contribution to the field of cancer research. Dr. Furth was chosen to receive the award for his scientific endeavors in the field of radiation biology. He was the first to demonstrate experimentally the induction of leukemia in mice by the use of whole-body irradiation.

#### **National Conference Urges U. S. Act to Aid Nursing Homes**

A four-day conference, attended by 150 persons representing virtually every organization involved in nursing homes and homes for the aged, has spotlighted the question of what responsibility the Federal government has in this area. The meeting, held in Washington, was sponsored by U. S. Public Health Service. One conference section, on financing, called for federal legislation to stimulate local financing to build and renovate homes. The resolution, which left open the question of whether the U. S. should offer matching grants, mortgage guarantees or both, is as follows:

"There is need for Federal legislation further to encourage financing for the construction and renovation of nursing homes and homes for the aged, including a set of recommended construction standards for use by the financing agencies

when such construction or renovation meets clearly demonstrated local needs. The need for such legislation is so urgent as to require prompt consideration by appropriate executive and legislative sections of the federal government."

#### **Britain to Boost Health Charges Again**

Britain's chancellor of the exchequer announced a few days ago that contributions to the National Health Service by those using it and by employers would be boosted again in July.

The chancellor told the House of Commons that the whole structure of the social services would be imperiled unless their cost to the treasury was kept in bounds.

The chancellor estimated the cost of the health service during the coming fiscal year at \$2,072,000,000.

#### **Joint Action Program**

New York — A Joint Action Program aimed at preventing accidents and improving care of accident victims was announced here by the American College of Surgeons, the National Safety Council, and the American Association for the Surgery of Trauma.

The announcement was made by Dr. I. S. Ravdin of Philadelphia, Chairman of the Board of Regents of the American College of Surgeons, following a Board of Regents meeting yesterday at which plans for the Joint Program were approved by the College.

As outlined by the representatives of the three participating organizations, the Program will include:

1. Public education in accident prevention and handling of the injured.
2. Employment of joint state and local committees of the American College of Surgeons and National Safety Councils, together with other interested surgeons, safety engineers, and public officials to formulate safety plans for local communities.
3. Possible registration of unusual cases of injury.
4. Proposed investigations of emergency care of traffic injuries.
5. Model Legislation to require adequate training in first aid and transport.

tation of the injured for ambulance attendants, policemen and firemen.

6. Cooperation in the production and improvement of training materials and instructional aids dealing with problems in handling the injured.

### AMA Prepares New Placement Aid

A new throw-away leaflet — "Look Before You Leap" — is being produced by the AMA's Physicians Placement Service as a check list for physicians seeking a location. Since many physicians still apparently are not aware of the placement services available to them through their state medical associations and the American Medical Association, this leaflet will be distributed in adequate supplies to state societies, hospitals and medical schools.

### ODM Acts on Two Health Groups: Hess Committee Duties Defined

Office of Defense Mobilization Director Gordon Gray took two actions this week bearing on the medical professions. He spelled out for the first time the functions of the Health Resource Advisory Committee headed by Dr. Elmer Hess, which advises ODM on the civilian aspects of medicine in time of war or national emergency. He also directed that the Interagency Health Advisory Board, which is concerned with inter-governmental problems in defense mobilization, be headed by the assistant director of ODM for health.

The Gray order on the Hess Committee provides that members shall be representatives from the "health community", including but not limited to medicine, dentistry and nursing and persons having competence in clinical practice, public health, hospital administration, research and education. Its duties are: (1) advise the director of ODM on problems relating to the mobilization of health resources, (2) make recommendations on questions of policy relative to the allocation,

utilization, and administration of health resources under various mobilization situations, and (3) interpret views of the health community of the country on matters relating to the mobilization of health resources, including manpower, facilities and supplies.

On the Interagency Health Advisory Board, the Gray order provides for a 10-man group with the assistant director of ODM for health (Dr. W. Palmer Dearing) as chairman. Previously the head of the Health Resources Committee was chairman. Others on the board are representatives of: Health Resources Advisory Committee (Dr. Hess), Office of Secretary of Defense (Dr. Frank B. Berry), Department of Army (Maj. Gen. Silas B. Hays), Department of Navy (Admiral Bartholemew Hogan), Department of Air Force (Maj. Gen. Dan Ogle), Department of Health, Education, and Welfare (Deputy Surgeon General John D. Porterfield), Federal Civil Defense Administration (Dr. Robert L. Smith), Veterans Administration (Dr. J. Herbert Smith), and Selective Service System (Col. Richard Eanes).

The board is charged with furnishing advice and assistance to the ODM chief on (1) interagency problems in defense mobilization planning for the use and control of health resources, including professional and auxiliary health manpower, health supplies and equipment and health facilities, (2) related health studies and program recommendations, and (3) such other related health mobilization matters as may be required.

### Tax Relief

Rep. Scott (R., Pa.) would increase the amount of a personal income tax exemption for a dependent attending college from the present \$600 to \$1,000. His bill is H. R. 10506 . . . Rep. May (R., Conn.) would allow a deduction of up to \$800 per year for tuition and fees for a taxpayer, his spouse or dependent if they are students for five months at an institution above the high school level. His bill is H. R. 10543.



# ANNOUNCEMENTS

## Postgraduate Refresher Course In Hawaii and Aboard Ship

A postgraduate refresher course is being offered by the University of Southern California School of Medicine and is to be held in Hawaii and on board the S. S. Matsonia from August 5 to August 21, 1958. The course will take place weekday mornings from 9:00 a. m. to 12:00 noon. Afternoons, evenings and weekends are free. For further information write Phil R. Manning, M. D., Director-Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33, California.

## EENT Meeting

The Kansas City Society of Ophthalmology and Otolaryngology is holding its annual "out of town" meeting at the Arlington Hotel in Hot Springs, Arkansas, on Saturday, May 17th, 1958. This is a social meeting with about a two hour scientific program on Saturday morning. There will be a program for both eye and ear, nose and throat. The eye program will be a symposium on cataract surgery. There will be a "Dutch treat" banquet on Saturday night. All EENT men in the state of Arkansas are cordially invited and urged to attend. Inquiries concerning this meeting may be directed toward Everett C. Moulton, Jr., M. D., 1214 North B Street, Fort Smith, Arkansas; or Dick H. Underwood, M. D., 1107 Bryant Building, Kansas City 6, Missouri. Further details will be announced at the EENT Section meeting of the Arkansas State Medical Society at Hot Springs on May 6th.

The Children's Hospital of Philadelphia and the Graduate and Undergraduate Schools of Medicine, University of Pennsylvania announce a series of short refresher courses in 1958, for Practitioners, Pediatricians, and Clinical Pathologists, in the Auditorium of the Hospital, 9:00 A.M. to 5:00 P.M., 1740 Bainbridge St.,

Phila. 46. All courses will emphasize developments of the past few years which are important to the physician in practice. There will be panel discussions, demonstrations, conferences and case presentations on the following subjects: "Pediatric Advances," Monday through Friday, May 26 through 30, 1958. "Practical Pediatric Hematology," Monday, Tuesday and Wednesday, June 2, 3 and 4, 1958. "Hemolytic Disease of the Newborn," Thursday and Friday, June 5 and 6, 1958.

## Post Graduate Course In Geriatric Medicine

The Washington University School of Medicine Division of Gerontology is conducting a post-graduate course in Geriatric Medicine with special emphasis on heart disease and the Psychosocial Problems of Later Life to be held at the University on Saturday, May 24 and Sunday May 25, 1958. This course will feature outstanding speakers from the St. Louis area and several authorities in the field of geriatrics from other universities. Clinical application of the basic principles of disease in later life will be stressed.

# Obituary

Dr. Martin Van Buren Russell, 79, a resident of Hot Springs for the past 5 years died February 18, 1958. Dr. Russell practiced medicine at El Dorado for 30 years prior to his retirement. Dr. Russell was a fellow of the American College of Surgeons and a member of the Academy of Ophthalmology and Othorynology. He was a past president of the Hempstead and Union County medical societies and a charter member of the Hope Rotary Club, and the El Dorado Kiwanis club. He was a member of the El Dorado Golf and Country Club. Dr. Russell was a member of the Central Baptist Church of Hot Springs and the Masonic Lodge of El Dorado. He is survived by his widow, Mrs. Leathe Russell; a daughter, Mrs. Garth Akridge, Jacksonville, Fla.; and a grandson, Russell Akridge, Jacksonville, Fla.

## PERSONALS AND NEWS ITEMS

**Dr. Frank Rhodes** has been named Osceola's Outstanding Young Man of 1957. He was presented the Distinguished Service Award by the Osceola Junior Chamber of Commerce.

The new chief of staff at St. Bernard's Hospital in Jonesboro is **Dr. W. F. Shepherd**. Dr. Shepherd, elevated from vice chief of staff, succeeds **Dr. R. C. Hooper**, who died of a heart seizure at the hospital. **Dr. Edward Cooper** was re-elected secretary of staff.

**Dr. and Mrs. Harry E. Murry**, Texarkana, left March 11 for a tour around the world. They joined a group in Anchorage, Alaska, for the trip and will return home around the 15th of May.

**Dr. E. M. Gray**, retired Mountain Home physician, was presented with the coveted Silver Beaver award for Boy Scout leadership recently. The Silver Beaver medal is the top award for Scout leaders and was given in recognition of his 30 years' service in the program.

The new administrator of the Boone County General Hospital is **Mr. O. C. Estes**, former superintendent of the McAlister City Hospital, McAlister, Okla.

The Lions Club of El Dorado had as a guest speaker recently **Dr. R. B. Robins** of Camden.

**Gov. Faubus** has appointed **Dr. R. C. Dickinson** of DeQueen to the Board of Control of the State Hospital. Dr. Dickinson succeeds **Dr. Euclid Smith** of Hot Springs whose term has expired. The term of the new appointee will run until Jan. 14, 1963.

## *Proceedings of Societies*

A seminar on gastroenterology was sponsored in March by the Ouachita County Medical Society. Discussion participants from the University of Arkan-

sas School of Medicine included Drs. Kerison Juniper, Jr., Jerome Levy, Ben Heller, James Growden, Robert Abernathy, Howard Barnhard, Raymond Irwin and Arthur Moore.

Five doctors from the Brooke Army Medical Center at Fort Sam Houston, Tex., discussed four phases of injuries from nuclear explosions at the March meeting of the Pulaski County Medical Society.

**Dr. John Wright**, Newport, was elected president of the Jackson County Medical Society at their March meeting. Other officers elected for the coming year were vice president, **Dr. R. O. Norris** of Tuckerman and secretary-treasurer, **Dr. John D. Ashley**, Newport.

The Lee County Medical Society met February 18, 1958, at the Lee Memorial Hospital in Marianna. A clinical discussion of "Fever" was led by **Dr. Dwight W. Gray** of Marianna.

At their regular meeting in March, the Jackson County Medical Society elected new officers for the year. **Dr. John Wright** of Newport was elected president; **Dr. R. O. Norris** of Tuckerman, vice president; and **Dr. J. D. Ashley**, Newport, secretary-treasurer.

Narcotics and its connection with medical profession was discussed by **Harold C. McKenney**, Arkansas Director of the Federal Narcotics Bureau, at the regular meeting of the Garland County Medical Society in March.

The Mississippi County Medical Society met at the Blytheville Country Club recently and the following officers were elected: **Dr. M. L. Godley**, Manila, president; **Dr. Julian Fairley**, Osceola, vice president; **Dr. Eldon Fairley**, Osceola, re-elected secretary-treasurer.



## ANSWER FOR

### "WHAT IS YOUR DIAGNOSIS?"

**CLINICAL DATA:** Fever, hyperirritability of two months duration with inability to use right arm. Diagnosed as Caffey's Disease and treated with ACTH and Cortisone with clinical and radiographical improvement.

**LAB DATA:** Alkaline Phosphatase 32.7 K.A.U. (Normal 1-13)

**SURGERY:** NONE

**X-RAY FEATURES:** Moderate cortical proliferation along the right clavicle, right mandible, right humerus, right scapula.

**DIAGNOSIS:** Caffey's Disease.

From the University of Arkansas Medical Center  
Department of Radiology

## CORRESPONDENCE

The following letters were written in response to the letter of Dr. Paul G. Henley, Secretary, Fifth Medical District. This letter was published in the last issue of the Journal and requested the Arkansas members of the House of Representatives and Senate to support certain resolutions of the Fifth Medical District: they ask that the Jenkins-Keogh Bill, to set aside money for a retirement fund, be supported; secondly they ask that the medical profession be excluded from Social Security and thirdly, they ask for opposition to the Forand Bill, which proposed that the Federal Government pay the cost of certain types of medical and nursing treatment in the aged.

February 3, 1958

Dr. Paul G. Henley  
Secretary, Fifth District Medical Society  
Suite 5, Medical Arts Building  
El Dorado, Arkansas

Dear Doctor Henley:

Thank you for your letter of January 28, 1958, with reference to legislation of special interest to the medical profession.

The Ways and Means Committee of the House of Representatives inform me that they have received testimony on the Jenkins-Keogh Bills (H. R. 9-10) during their current hearings which will be concluded on February 7 and the printed hearings will be available in March. I shall be happy to give these bills full and sympathetic consideration when they reach the Senate floor.

I appreciate knowing the views expressed concerning coverage of the medical profession by Social Security. I shall be happy to support your point of view, as I have done in the past, concerning this issue.

Regarding H. R. 9467. I have always stood with the medical profession on any legislation which "smacks" of socialized medicine. I know of no reason why I should change that position.

With kindest regards. I am

Sincerely yours,  
John L. McClellan

JLMcC:jdb

February 5, 1958

Dr. Paul G. Henley, Secretary  
Fifth District Medical Society  
Suite 5, Medical Arts Building  
El Dorado, Arkansas

Dear Dr. Henley:

Thank you for your letter of January 28 advising of the views of the Fifth District Medical Society on H. R. 9 and 10, H. R. 9467, and that you desire to continue to be excluded from Social Security coverage.

I am sure you know that I have always opposed the inclusion of doctors under Social Security. My feeling on the matter has been guided by the expressions I have received in the past from doctors in my Congressional District and throughout the State which have led me to believe that a majority in the profession are opposed to coverage. I have, therefore, assisted them from being included under the program on each occasion that the Congress has had the question before it.

My sole purpose is to do what I am led to believe a majority of the doctors I represent here would want done on this question, as well as a majority of the doctors in our State. My actions in this respect shall continue to be guided by the wishes of the majority of doctors in my District and in the State.

At the present time I am not in a position to actively push the Jenkins-Keogh bill. I have devoted considerable time and study to this proposal which has been pending before the Committee on Ways and Means for several years, but there are certain implications about the matter which have given rise to the questions in my mind that remain unresolved. In addition, I think it is best for matters of this sort which actually involve a reduction in tax, regardless of the purposes, to be considered when taxes can be reduced for everyone and as a part of a program of tax reduction.

However, in connection with the public hearings on general tax revision which the Committee on Ways and Means has been conducting since January 7 last and which will be concluded on Friday, February 7, we have heard a number of witnesses appearing with respect to H. R. 9 and 10. Sometime following the conclusion of the hearings the Committee will consider all recommendations and testimony in Executive Sessions, including the Jenkins-Keogh proposal. You may be sure that I will give careful consideration to this additional testimony in a further effort to resolve the questions I have about the legislation.

I have not had an opportunity to actually study Mr. Forand's bill, H. R. 9467. It has not been before the Committee to date and it is not now known whether or not the Committee will consider amendments to the Social Security Act dur-

## FEATURES

ing this Session of Congress. However, in connection with such consideration which may be given to H. R. 9467, I shall certainly bear in mind the opposition of your Society to it.

With kindest regards and best wishes, I am  
Sincerely yours,  
Wilbur D. Mills

WDM:lc

February 5, 1958

Paul G. Henley, M. D.  
Medical Arts Building  
El Dorado, Arkansas

Dear Dr. Henley:

I have your letter of January 28th. Frankly, the Jenkins-Keogh bill is one of the most complicated pieces of legislation that will confront the Congress. It is simple to begin with, but if one group is allowed to buy its own insurance, others will want to do the same; and we would have the whole tax situation confused. I have talked to Gene Keogh and Tom Jenkins about it, and also to Wilbur Mills. I start out wanting to let each group buy their retirement, but I want to reserve judgment until I find out just what complexities we might encounter in the general tax set-up, which is already so complicated that it is almost beyond understanding.

I am very definitely with you on being excluded from Social Security.

I start out against the Forand bill, but again I know so little about the final ramifications that I want to reserve final judgment until I hear all the evidence.

Sincerely,  
J. W. Trimble

JWT:mm

February 6, 1958

Dr. Paul G. Henley  
Suite 5, Medical Arts Building  
El Dorado, Arkansas

Dear Dr. Henley:

Thanks for your recent letter concerning the position of your Medical Society on three important legislative matters.

With regard to the Jenkins-Keogh bills to permit certain tax exemptions for self-employed persons for purposes of retirement income, I am in favor of the principle of equal treatment of all pension retirement programs and would be inclined to support legislation designed to achieve this purpose.

I would be certain to respect your wishes regarding the exclusion of doctors from Social Security.

My attitude about the Forand bill to provide Social Security payments for the hospital costs of old people is not completely determined. You may be sure, however, of my opposition to socialized medical care.

Sincerely yours,  
Brooks Hays

February 3, 1958

Dr. Paul G. Henley  
Suite 5, Medical Arts Building  
El Dorado, Arkansas.

Dear Dr. Henley:

I acknowledge receipt of your letter of January 28 urging my support of the Jenkins-Keogh bills, H. R. 9 and 10; opposing the inclusion of

professional personnel in the Social Security system; and opposing the provisions of H. R. 9467, and requesting a statement of my position on these matters.

It is not my custom to indicate, prior to the time any bill in the House comes on for passage, what my exact position will be on that bill. This is for the reason that, as you know, many changes may be made in any bill which is introduced, through Committee amendment, or amendment on the floor of the House. As an example of this, since I have been a member of the House I have seen a case where a member who introduced a bill saw the bill so changed before coming up to a vote that he made a speech on the floor against his own bill. Generally speaking, however, I will say that my views on the legislation you mention are in accord with your own.

Sincerely yours,  
W. F. Norrell

February 3, 1958

Dr. Paul G. Henley, M. D.  
Secretary  
Fifth District Medical Society  
El Dorado, Arkansas

Dear Dr. Henley:

This will acknowledge your letter of January 28 regarding the meeting of the Fifth District Medical Society on January 16 and their attitude on three important legislative matters.

I note that you favor the Jenkins-Keogh proposal; that you wish to continue to be excluded from the Social Security program; and that you oppose the Forand proposal, H. R. 9467.

I concur in your views regarding the Jenkins-Keogh legislation and this, if adopted, would be a much better approach than placing professional people under the Social Security program.

I have not given full study to the Forand proposal, but I am certain that you are acquainted with my opposition to socialized medicine.

It was thoughtful of you to contact me regarding these matters, and I appreciate having the views of your membership.

Yours very sincerely,  
E. C. Gathings

March 4, 1958

Dr. Paul G. Henley  
Suite 5, Medical Arts Building  
El Dorado, Arkansas

Dear Dr. Henley:

I am very glad to have your letter advising of the meeting of your Society and action to acquaint the Delegation from our State with the views of doctors in our area on three important legislative matters. I appreciate having the expression of views on these important problems and this opportunity of responding.

With reference to H. R. 9-10, the Jenkins-Keogh Bills, the Committee has held extensive hearings and will very likely consider reporting it along with other tax questions during this session. It would provide a method of retirement income for professional people as doctors, etc. I feel that professional people should have an adequate retirement program and if given the opportunity will support this or a similar program.

With reference to doctors being included in Social Security, I have opposed such extension of the Social Security program at the request of the doctors themselves. The overwhelming sentiment



thus far has taken this position. I shall continue this position though I fully realized there should be some adequate retirement program such as the Jenkins-Keogh Bill. If some such alternative is not agreed to, I feel ultimately the doctors will come within the provisions of the Act.

With reference to the Forand Bill, H. R. 9467, I have had occasion to consider this proposal and do not feel that it would be in the best interest. I am deeply sympathetic, however, for the aged and have supported a program to take care of them in our Committee through expansion of the Hospitalization Program. I have discussed with some members of the medical profession the necessity for an alternate approach to the Forand Bill and it is my understanding consideration is now being given to it by your Association.

I wish to assure you that I am fully aware of the importance of these proposals and will continue to give them my most careful consideration.

Sincerely yours,  
Oren Harris, M. C.

February 10, 1958

Dr. Paul G. Henley  
Suite 5, Medical Arts Building  
El Dorado, Arkansas  
Dear Dr. Henley:

Thank you for your letter of January 28, 1958, informing me of the attitude of the doctors of the Fifth District Medical Society in regard to the so-called Jenkins-Keogh Bills H. R. 9 and 10.

I am pleased that you took the time to inform me of the opinions of your group. As you know, these measures originated in the House of Representatives and have not yet been acted upon by that body. I assure you that when they are acted upon in the Senate, they shall have my serious consideration.

With kind regards, I am

Sincerely yours,  
J. W. Fulbright

JWF:cjb

## *Random Thoughts*

### OF THE SECRETARY

February 16th. This date discovering that our election as secretary was not an empty honor; Schaefer succumbs to Hundley hospitality and remains in Pine Bluff with some sort of viral infection and it becomes our chore to record proceedings of respectively, the legislative committee, the Medicare group and the Council meeting, aggravating in much degree our personal affliction of "Writer's cramp."

February 22nd. Spending the day with the electronics expert who unsuccessfully and with increasing frustration endeavors to place our iodine tracer equipment in operating condition, bringing to our attention that the practice of medicine is but another field with human frailties.

February 26th. For the second time this month, unseasonable, or is it?, weather prevents our trip across the Ozarks to Rogers from Clarksville, adding much emphasis to our contention that there is nothing which can become so SNAFU as flying.

March 9th. The budget committee and the executive committee meet in Hot Springs, not as would have been supposed, to permit dalliance at Oaklawn the preceding day, but to seek a change of scenery and a pleasant day was had by all.

March 20th. Attending the Association of Tumor Clinic Staff Members in Arkansas where the New York program presents a wellrounded and profitable session although we are most cognizant that the majority of those in attendance are wearing the white coats of the medical school staff. Pleased to visit with the garrulous and effervescing Stanley Gates who is enjoying retirement as he has ever done with activity.

March 21st. Discussing with the tumor clinic secretaries the many problems which denial of funds for hospitalization of the indigent cancer patient has produced for the Cancer Commission. Welfare may have its good points but it becomes increasingly obvious that it cannot provide care for the indigent cancer patient which previously existed under the physicians' program in Arkansas.

## *Woman's Auxiliary*

Mrs. Gordon Oates of Little Rock was installed as president of the Woman's Auxiliary to the Arkansas Medical Society at the thirty-fourth annual session May 5 and 6 at the Arlington Hotel in Hot Springs. Other officers who will serve for this year include: President-elect, Mrs. Paul Gray, Batesville; First Vice-President, Mrs. E. D. McKelvey, Paragould; Second Vice-President, Mrs. Howard Rands, Dumas; Third Vice-President, Mrs. John Walter Jones, Texarkana; Fourth Vice-President, Mrs. L. A. Whitaker, Jr., Fort Smith; Recording Secretary, Mrs. A. J. Forestiere, Harrisburg;

Treasurer, Mrs. Mason Lawson, Little Rock; Historian, Mrs. C. W. Garrison, Little Rock; Parliamentarian, Mrs. Frank Adams, Hot Springs. Mrs. L. Gardner of Russellville, immediate past president of the auxiliary, served as chairman of the nominating committee.

An open invitation to all doctors and their wives to attend the Hawaii Summer Medical Conference in Honolulu July 1-3, 1958, has been extended by Dr. Samuel L. Yee, president of the Hawaii Medical Association. The conference is under the auspices of the Hawaii Medical Association, constituent society of the A.M.A. and has been timed to follow immediately the A.M.A. annual meeting in San Francisco June 23-27, 1958. Aside from attendance at the scientific sessions various other official social functions will be provided in the official trips, and a choice may be made of traveling round-trip by air or of combining air and steamer travel between the mainland and Honolulu.

For additional information contact Lee Kirkland Travel, c/o Medical Tours, P.O. Box 3433, Chicago 54, Illinois.

#### Around the State by Counties:

**BOONE:** "The Day Called X," a film on civil defense, was shown to members of Boone County Medical Auxiliary by John Saxon, Civil Defense Director for Harrison, at the auxiliary's February meeting. After the film Lee R. Wilcox, Coordinator of District 7 of the state civil defense, explained what is being done in Arkansas and Boone County to prepare for emergencies of attack or disaster by flood, fire, or tornado. Mrs. William P. Barron has served as president of Boone County Auxiliary this year.

**GARLAND:** Mrs. Jack Kennedy of Arkadelphia and Mrs. Gordon Oates of Little Rock were special guests of Garland County Medical Auxiliary in February. Hostesses for the meeting, a luncheon in the Fountain Room of the Arlington Hotel in Hot Springs, were Mrs. Haynes Jackson, Mrs. Thomas Durham, Mrs. R. F. Graham, and Mrs. W. K. Smith. Mrs. William A. Woodcock has served as president this year.

**JEFFERSON:** Attorney Stephen A. Matthews spoke on the Pine Bluff Subdivision Ordinance at the meeting in March of the Women's Auxiliary to the Jefferson County Medical Society. Others on the program were Mrs. Webb R. Phillips representing the Canteen Corps of the Red Cross and Lt. Milferd Guibor of the Medical Administration Office at Pine Bluff Arsenal. During the business portion of the meeting, new officers were elected. Mrs. E. L. Hutchison was chosen president and Mrs. James T. Rhyne as the president-elect. Vice president will be Mrs. J. R. Pierce, Jr., with Mrs. Donald J. McCaughey as secretary. The new treasurer is Mrs. W. R. Meredith.

**PULASKI:** Mrs. Winthrop Rockefeller was guest speaker for the March meeting of the Pulaski County Medical Auxiliary. Mrs. Robert Carnahan, chairman, introduced Mrs. Rockefeller, who spoke on "Mental Health."

**SEBASTIAN:** New officers of Sebastian County Auxiliary for next year, elected at the March meeting, are: Mrs. Ben Pride, president; Mrs. Marlin Hoge, vice-president; Mrs. Hoyt Kirkpatrick, secretary; and Mrs. Roy Schirmer, treasurer. Mrs. John D. Olson was hostess for the meeting in her home. Mrs. Oliver Presley, president of the State Nurses' Association, presented the program, speaking on nursing and nursing needs, as pertains to nursing schools in the state. She also explained the training available for nursing students and prospective nurses at the University of Arkansas Medical School. Paul Schaefer, executive secretary of the Arkansas Medical Society, will present a program on legislation at the next meeting.

**WHITE:** White County Medical Auxiliary was organized in January at Searcy at a luncheon at the home of Mrs. Porter Rodgers, with the following officers: Mrs. Rodgers, president; and Mrs. M. C. Hawkins Jr., secretary-treasurer. Thirteen doctors' wives have been enrolled as active members. Mrs. Gordon Oates has served as state chairman of organization this year.



## BOOK REVIEWS

**THE STORY OF PEPTIC ULCER:** Richard D. Tonkin, M.D., F. R. C. P., Westminster Hospital, London; Pp. 71, Illustrated; 1957; \$2.25; W. B. Saunders Company, Philadelphia.

This little volume is written expressly for the patient's own understanding of his own pet, peptic-ulcer. The illustrations are chiefly cartoons delightfully drawn to portray a point and before the reader is aware of it he has been given some good advice on how to conduct his life, his food, and when, and how to consume it. The caricature extends into the reading matter and it might be classified as high whimsy. The stuffiness of the average English humor is not apparent in this charming little book.

Its' advice to the patient is plain and scientifically accurate both from the background of the ulcer case and to its daily habits. The patient will profit from having the volume to pick up at any time for a relaxing moment in an unrelaxing malady. The physician himself will enjoy the humor of both the illustrations and the text.

F. R.

**A TEXTBOOK OF CLINICAL NEUROLOGY.** Israel S. Wechsler, M. D. W. B. Saunders Company, Philadelphia, London. Pages: 782. January 2, 1958. \$11.00.

Dr. Wechsler's Textbook of Clinical Neurology is now in its eighth edition; this illustrates very well its popularity. This book is remarkably concise considering the general field of neurology. It reviews in the first portions the technique and interpretation of neurological examinations. There are also brief discussions of psychological examinations. The organization of the book is fairly conventional with portions on the spinal cord peripheral nerves, cerebral nerves, diseases of the brain and the neuroses. This book is a textbook rather than an encyclopedic volume and as such is recommended principally to the general physician and to medical students. It is authoritative and well written.

AK

## TUBERCULOSIS ABSTRACTS

Sponsored by

The Arkansas Tuberculosis Association

### Bronchiectasis and Acute Pneumonia

By William Ruberman, Irving Shauffer, and Thomas Biondo, *The American Review of Tuberculosis and Pulmonary Diseases*, November, 1957.

*Introduction.* Bronchiectasis has been considered a disease that originates in childhood after a severe respiratory infection. During the past ten years, however, studies on young adults who recently had

● **Bronchiectasis should be suspected when the roentgenogram of a patient with recent acute pneumonia shows very slow resolution of the pneumonic process and persistence of parenchymal rales and productive cough are noted.**

bouts of acute pneumonia suggested that adult infections might also be a cause of bronchiectasis. Studies of such "postpneumonic bronchiectasis" have indicated that in some instances the bronchogram naturally reverts to normal. The present study is concerned with the incidence, diagnostic features, and stability of bronchiectasis first discovered after recent pneumonic infections.

*Methods.* The clinical records and roentgenograms of 94 patients on whom bronchograms were performed over a 28 month period at the U. S. Army Hospital, Fort Dix, New Jersey, were reviewed. The first group consisted of 69 patients selected for bronchography from a total of 1,711 patients seen with acute pneumonia. The second group consisted of 25 patients whose history or chest roentgenograms suggested chronic bronchiectasis. Patient selection of bronchography was done on the basis of uniform criteria.

Bronchography was performed on the patients with pneumonia not less than one month after all clinical evidence of activity had subsided, and only after any residual roentgenographic abnormality was shown to be stable for at least three weeks. Repeat studies were made in 24 instances and each was performed at least eight weeks after the preceding one. All of the patients were bronchoscoped immediately prior to the first bronchogram.

Bronchiectasis was diagnosed only by the presence of obvious cylindrical or sacular dilatation of the bronchial lumen. No untoward reaction to the procedure was encountered except in patients with bronchial asthma. The latter all developed moderately severe wheezing that responded satisfactorily to standard therapy.

*Results.* Of the 69 patients who recently had acute pneumonia, 29 were found to

have bronchiectasis. One patient had an abnormal bronchogram that reverted to normal on the repeat study. Of the 18 patients who had not had an immediately preceding pneumonia, 5 had bronchiectasis and 13 were normal. Seven patients with asthma and chronic cough were studied. Six were found normal and one patient had an abnormal bronchogram.

The 29 patients with recent acute pneumonia who had bronchiectasis represent 1.7 per cent of the total number of patients with pneumonia seen during the same period. There was no significant difference in the past respiratory history of the bronchiectatic subjects compared with the group found to have normal bronchograms. There were significant differences however, in the nature of the immediately preceding pneumonia in the two groups. In the bronchiectatic group the mean duration of roentgenographic evidence of pneumonia was two months, while it was one month in the normal group.

There was no significant difference between the two groups with respect to the extent of the pneumonic process as seen on the roentgenogram. A significantly greater proportion of patients in the group with bronchiectasis had prolonged fever and leukocytosis than of those in the non-bronchiectatic group, while there was no difference in the frequency of elevated cold and influenza hemagglutinin titers.

There was a significant difference between the two groups in the physical findings of the chest. While persistent parenchymal rales for one or more weeks following the subsidence of all acute manifestations of the pneumonia were noted in 75 per cent of the patients with bronchiectasis, this was true in only 11 per cent of the patients in the non-bronchiectatic group. There appeared to be a similar increase in the frequency with which productive cough was present in the bronchiectatic group.

In 20 patients, of the 29 studied, there was a direct correlation between the site of the bronchiectasis and the location of the preceding pneumonia.

Eighteen patients had bronchograms performed for indications other than those arising during the course of an acute pneumonia. All but three of this group were seen initially because of acute nonpneu-

monic respiratory infections (pharyngitis, bronchitis), and a suggestive respiratory history or abnormal chest roentgenogram. Five patients in this group were found to have bronchiectasis and 13 had normal bronchograms.

No differences were found in the two groups with regard to past history of pulmonary disease.

Seven patients with bronchial asthma were bronchographed because of the presence of bothersome, chronic productive coughs. Six of these had normal bronchograms. The seventh had an irregular dilatation of an intermediate bronchus.

*Discussion.* The results of this study indicate that bronchiectasis is a common pulmonary lesion and that its presence should be considered during the course of an acute pneumonia when certain clinical features are manifest. The most important of these features is a persistently abnormal chest roentgenogram, indicating incomplete resolution of the pneumonic process.

Parenchymal rales that persist longer than clinical signs of activity are of considerable importance. If, in addition to the above findings, the patient's pneumonia is characterized by prolonged fever, continued productive cough, and leukocytosis, the diagnosis of bronchiectasis is rendered more likely.

A bronchogram is warranted in every case. The procedure is easy to perform, carries no significant danger, and is the only objective method of demonstrating the presence and extent of the abnormality.

In the present series only one of 14 patients with bronchiectasis, in whom the examination was repeated, show reversion of the process to a normal state.

Undoubtedly, persistent but reversible bronchial dilatation does occur after a pneumonia although the occurrence is not common. Furthermore, the presence of artefacts and the difficulties inherent in borderline diagnosis should caution against overstating the problem.

In the group of 18 patients bronchographed because of an abnormal respiratory history, 5 patients were found to have bronchiectasis. Specific history of rapidly repeated bouts of pneumonia, all of which



cleared rapidly, was not found to be indicative of bronchiectasis. The roentgenographic finding of localized emphysema, segmental atelectasis, or honey-combing was confined to the bronchiectatic group. A plain film of the chest, if it shows the positive findings noted above, is therefore of some value in the pre-bronchographic diagnosis of bronchiectasis. A normal chest roentgenogram in no way excludes the possibility of the presence of bronchiectasis.

The relationship of a preceding pneumonia to the bronchiectasis is uncertain. An underlying bronchiectasis could predis-

pose to a more protracted course of pneumonia or, alternatively, a more severe pneumonic infection could so damage normal lung as to leave some permanent damage in the form of bronchiectasis.

It is believed that the available evidence does not warrant a definite conclusion on the subject. The mere association of two events does not denote a cause and effect relationship. The most that one can say is that the bronchiectasis first noted after a recent pneumonia may possibly, but not definitely, have been caused by the acute infection. Further proof will be necessary to establish this as a certainty.

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**I N D E X**  
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**ABBREVIATIONS—**

(O) Original Articles: (SP) Special Articles:  
(E) Editorial: (OB) Obituary: (R) Resolution.

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